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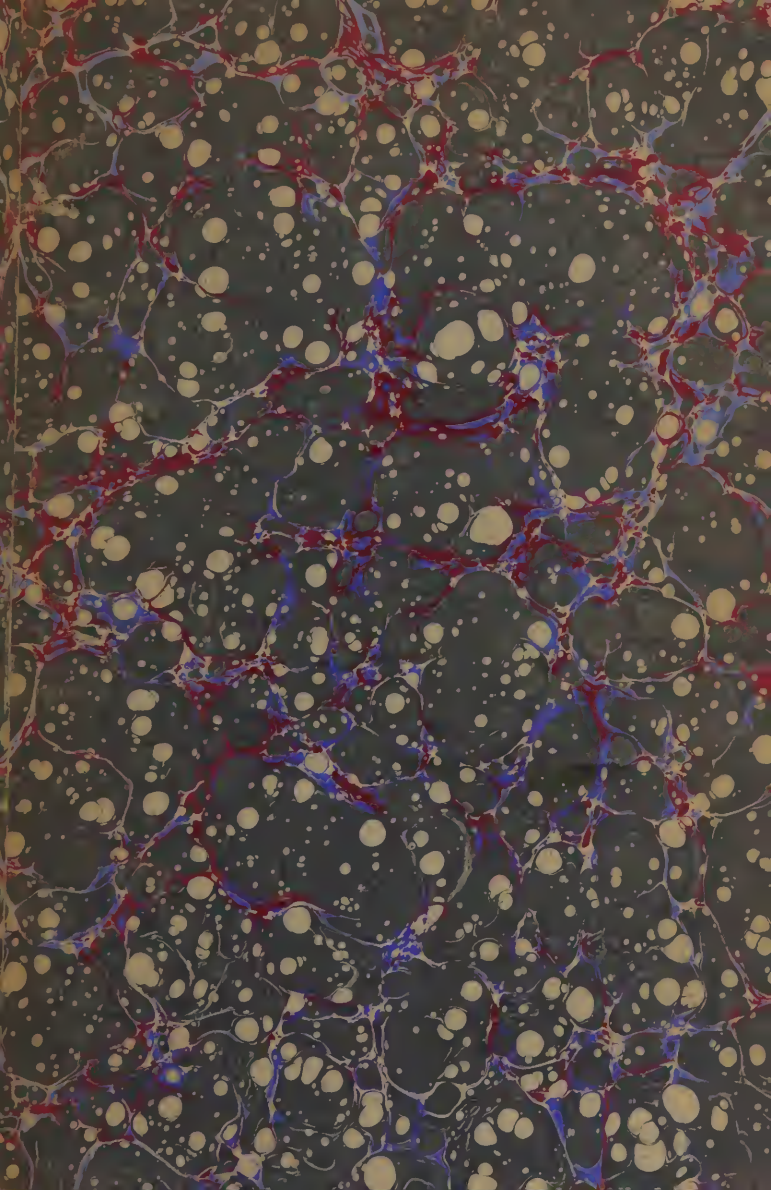
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POLLARD AND MINKLER'S 1200  
OBSTETRICAL SUPPORTER: 7  
1321

A DESCRIPTION

OF ITS

APPLICATION, USE, & BENEFICIAL EFFECTS,

AS CONNECTED WITH THE NATURAL PARTS AND ORGANS.

IN THE

PROCESS OF PARTURITION.

EMBRACING ALSO

A DESCRIPTION OF THE MUSCLES CONCERNED IN THE

MECHANISM OF LABOR.

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BY A. POLLARD, M. D.

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Sup  
27007  
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## INTRODUCTORY REMARKS.



I presume that under no circumstances whatever could I have produced a work that would have carried the world along with it, *nolens volens*; that would require a depth of thought, a fund of knowledge, and a sparkling genius to which I make not the least pretension. Nor did I ever claim in my wildest boyish flights of day-dreams, amid the enchantments of a romantic scenery, or when lured on by the 'will-o'-the-wisp' to build castles in the air, that I possessed that peculiar kind of captivating or meteoric genius that shoots athwart the literary and scientific horizon and leaves a splendid and luminous path behind it, to attract the astonished and admiring gaze of all our fellow-mortals, and, by sirenization, hold them fast against their judgment and their will, and by lighting up their foot-steps in a halo of enchanting effulgence,

serve as a beacon to draw the world of mankind in my wake through weal or woe. However agreeable those charmed powers might be to him who could sway the universe thereby, and mould the minds, hearts and actions of his fellow-men into a subserviency to his own views, and at all times control the turbulence of human passions and emotions, as the winds of heaven are held by the Power that created them, still I never could work myself into a belief that I possessed them.

I do think, however, that under a different state of things I might have told the simple facts and truths which I have endeavored to lay before the public, in a more pleasing if not in a more forcible manner. At least, I think I might have clothed them in a more graceful exterior ; but after all, truth is the real gem which we are all in pursuit of.

While composing this little work, I have labored under almost every disadvantage that a man could and not be entirely deprived of his intellect. It is known to all who have made the experiment, that our mental faculties may almost as well be absent as to be divided among a thousand conflicting calls at one and the same time. In the first place, it is a kind of labor that I



have never been accustomed to perform. True, I have been in the habit of thinking to some extent ; but I have not been in the habit of arranging my thoughts in a systematic form for the inspection of my professional friends, or the community at large. I have been somewhat disturbed and embarrassed under the pressure of pecuniary matters, which has afflicted the business community of all this region of country more or less. My professional business, for the most part of the time, has been pressing and somewhat urgent, and for a part of the time very much so ; and no hour in the twenty-four have I been able to call my own. I have been compelled to write in my office of business, and nearly one-third part of the time some one has been talking to me ; and I was compelled to hear and answer, compose and write, in the best manner that I could under all these perplexing drawbacks, which were sometimes enough to discourage a person with a much firmer nerve than I possess.

Now, that this pamphlet will contain errors, I have not the least doubt in the world. It would be passing strange if it did not. That they will be numerous, I very much fear.— That many of these errors may be attributed to

the causes above enumerated, I think will be acceded to by all ; but that this will satisfactorily account for all these errors, is a matter yet to be tried.

Those who are disposed to criticise harshly (I shall not say those *gentlemen* in this supposition) which is sometimes done without understanding the embarrassments under which a work is got up, and sometimes without understanding even the work itself, will probably be that class of persons with whom no excuse, whether reasonable or unreasonable, will be available. With this class I have nothing to do : I leave them to plume themselves in all the glory that they may acquire by an abuse or a detraction of the merits (if merits it has) of this little pamphlet. But, I hope, at least, that the disadvantages under which I labored will be taken into the account, by my *friends*, when they pass upon the style, or give judgment on the execution of this seemingly small, but to me really great undertaking. If there appears to be a lack of research to gather together the proper and fit materials for a public exhibition like this, or a want of perception to lay hold of, and appropriate to my use materials that are already in my reach ; or, if there is a lack of judgment

to apply, or put together these materials, then, of course, these deficiencies must be attributed to other causes than those which I have mentioned, and a part of them, at least, to a cause over which I have no control, and of course cannot be accountable for the errors that grow out of those deficiencies.

The only excuse that I can offer of any apparent weight for my audacity in stepping out of my appropriate sphere of action, and for attempting a thing of this kind, for which I was but poorly qualified, and which had ought to have been the work of more able hands, is simply this :—the apparent urgency in the matter seemed to impel me irresistibly along until I was fairly committed, and then I went on from mere desperation.

In this little pamphlet I have laid an instrument before the profession and the world that is new to them both. I have attempted to describe it, together with the natural parts and organs which it is designed to aid and assist—also its true mode of application, use and benefits, or beneficial effects on that portion of our race who are worthy of our sympathies. and who have long stood in need of more substantial aid from those who hold the reins and have the di-

rection of that science which pertains to the healing art.

This instrument, being new to the profession, will probably, like all other new things, have its warm friends and strong advocates, and also its opposers and detractors. It has already some very ardent, able and talented friends in the little circle where it is known, who are willing to go all lengths to secure its introduction and to promote its use—believing, as they do, that it is a heaven-sent messenger to mitigate the sufferings of the female portion of our race. Some of the brightest stars that radiate the honor of our profession, have given a decided and most unequivocal judgment in its favor.

On the other hand, it has met with its opposers ; but they are comparatively very few, and always theoretical instead of practical men ; and, I say it in all truth and candor, they are almost universally those who hold a far less exalted station in the profession and in the eyes of the world at large, than those who have given it a voluntary and hearty approval. And finally, the opposers are usually those whose opposition, to say the least of it, is not very alarming, and whose influence would be but triflingly flattering. Some, without even seeing the instru-

ment, or having its application or utility explained to them, have cried out, "Humbug—humbug! away with this impostor! we wash our hands of all participation in this abominable counterfeit, that is about to be palmed off on community!" and, in this way, these guardians of the common weal rid their garments of all the sins that are incident to the introduction and use of this instrument. Pious souls! what a relief it must be to them!

However, most of this kind of opposition appears to arise from no real wickedness of heart, but more from a want of capacity or discriminating powers to distinguish between a humbug and a reality: consequently, they put down everything that their grandfathers and fathers have not used, to be a 'humbug,' as a matter of course. Others have apparently been actuated by a kind of selfish jealousy—a dislike to everything which they have not had a hand in producing; and although they do not violently oppose, still they will turn a cold shoulder—put on a most tremendous wise look, and then remark that "It may be popular among the women, but that it probably don't amount to much, after all."

Strange as it may appear, an alarm has been taken at the great success of the instrument,

and some have expressed a fear that it would be purchased by families, and by its aid they would be enabled to dispense with the assistance of the accoucheur, and in this way a great injury was about to be perpetrated on the profession ; which is probably without the least foundation, unless the profession drive them into it. While others have no objections in particular, but say that the labor of child-birth is a natural process, and that nature neither requires nor will she admit of any successful or real assistance, and that we have only to fold our arms and let the work go on. Of this objection I have only to remark in this place, that it is a doctrine that has been too long preached for the good of suffering humanity. I had supposed that none of these objections would have been raised ; and I am happy to say that, with a very large majority of the profession, and those decidedly the most eminent in the science and art of Obstetrics, have made no such objections.—So, in regard to numbers, the instrument has a very large preponderance in its favor ; and in regard to weight of character, you might as well compare infinity with finite things.

From the very earliest time when I had weighed this matter in my own mind with care—from

the conclusions which I then arrived at, even before an instrument was constructed, I had almost made up my mind that no such objections would be urged against it. The principle on which it would act beneficially, appeared to me to be so perfectly obvious, that I verily believed no one at all conversant with the science could fail for one moment to comprehend its whole utility. But my disappointment in these expectations convinced me of the real necessity for me to expose myself in this public manner, in order to explain away those objections, according to the best of my abilities under the circumstances as well as to show the actual or positive benefits which must necessarily result from a right application and use of the instrument. And in making these explanations, and in showing these benefits, I have struck off into a path hitherto, as far as my knowledge extends, untrodden by man.

The philosophical views which I have advanced to sustain the positions I have taken in this matter, and the explanations given (as I believe in accordance with both science and philosophy) are sustained, if I have not misapprehended my whole subject, by actual demonstrations which cannot be controverted, together with the



reasons why it is that the calls of nature or the instinct of the female demand the various parts of this instrument to support and to aid and assist the natural efforts which are put forth by the muscular system, both voluntary and organic or involuntary. All these explanations are original with me. I have always understood that these things were called for by the patient, so and so; but the reason *why* she calls for them I have searched for in vain through all the medical lore from the days of Hippocrates down to the present time;—o'er all this ocean of learning and science my efforts have been attended with the same ill success as was the first adventure of Noah's dove. If those principles which I have advanced to prove the efficacy and the certainty with which it will most efficiently aid the parturient female have ever been previously advanced by any one in or out of the profession, they certainly have not come to my knowledge, and of course I have derived no advantage from them.

Some have objected to the instrument because a patent is obtained for it. I am well aware that there is a strong objection generally to patent anything in the profession; and as far as medicines are concerned, my prejudice is as



strong as any other man's. But with regard to the surgical or to the mechanical department of the profession, I think the case is somewhat different. As respects this instrument, the idea originated with my partner, and he is not a member of the profession. I am sorry to deprive the profession of the honor, but duty compels me to do so; and it was only by an express agreement that the instrument should be patented that I obtained a right to participate in the matter at all.

I do not say that I have been entirely idle in the matter. After having the original idea suggested to me, I have used all the powers of mind and knowledge that I could command to adapt the instrument exactly to the wants of nature in those cases in which it is designed to assist. If I am correct, I have no doubt but I shall receive the cordial support, and be sustained by all the profession whose good opinions are worth aspiring for. If I am in an error, of course it will be detected, and it will then share the fate of all other known errors, in the condemnation of all wise and good men.

With these remarks I submit this whole matter to the decision of that tribunal before whom it must be adjudged ; and most cheerfully do I

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await the result, with a firm expectation that the verdict will be in favor of all I have claimed. I now ask a careful perusal of this little pamphlet : it will be a loss of but little time, at most ; and if I am all wrong, I think it due to me from my professional brethren to make a sacrifice of this very small amount of time to set me right again.

POLLARD AND MINKLER'S

## OBSTETRICAL SUPPORTER.

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In order to describe this Instrument in such a manner that the description may pay the reader for a perusal, and interest those most directly concerned in its operation, and also to give a clear and philosophical account of its beneficial effects, the natural parts which it aids and assists, the manner in which, and the reason why it does it—it appears to be necessary to give a concise and somewhat minute description of the anatomy of the parts more immediately concerned in the mechanism of labor.

This may appear superfluous, and with a part of the profession it may be so, to some extent; still I think it will be better understood by most if not all the profession, to have the anatomy of the parts most directly concerned in labor, given in a connected form and in the order in which they are brought into operation in the great and important work of child-birth.

A description of the Instrument in the abstract, or a superficial glance at the natural organs concerned in parturi-

tion, would probably lead to more or less confusion in the mind of the reader, and most likely to an endless controversy, without any fixed or determinate principles by which the controversy might be brought to a close and the points of dispute settled, beyond a peradventure. Whereas, a description of the Instrument, its operation and effects, in connection with a full, fair and plain description of the muscles and organs with which it co-operates to benefit the female, will lay the principles of action of both the natural and artificial parts before the reader in so simple and comprehensive a manner, and mark out the way in so plain and straight-forward a direction, that it would seem to be unnecessary for a fool to err therein. And although I may take up a little time in the description of those muscles which are directly and indirectly concerned in the delivery of the female, so as to give their rise, insertion and ordinary use, I hope I shall be excused, from the fact that most of the principles which I propose to advance on this part of the subject are original with me, and of course I wish to sustain them with all the strength and force of argument which I can bring to bear in their favor.

An explanation of the parts, as well as the facts involved in this work, appears to be the more important from the fact, that in many instances where I have been conversing with my professional brethren about the Obstetrical Supporter, it has been with much difficulty that I could make them understand how the supporter could facilitate labor, although they could readily understand that it would mitigate the sufferings very much. This, with many other circumstances, led me to believe that a short explanation of all the various operations, together with the means by which they are produced, might not at all times be amiss, even among the sons of Esculapius. Another reason why I sub-

mit my scribblings to the inspection and criticism of my superiors is, that those most directly benefited in all these operations of which we treat, and consequently those most deeply interested, do not belong to the profession; and although they may not comprehend all the force of my reasoning on the anatomical structure of the various parts concerned in the process of parturition, from the fact that they will be unacquainted with many of the terms which I am compelled to use, still the most of what I have to say they will understand perfectly well, and very much of it they will comprehend from sad experience. And I have no doubt but to many of the arguments which I shall make use of, they would add their unqualified testimony to the truth of the same; and they may very naturally and very laudably have a curios'ty, (not an idle one,) to know something about the operation of an instrument that affords them so much help at a time when, of all others, they most need it. I shall endeavor to make myself understood by almost every person with an ordinary intellect, with the exception of my anatomical descriptions; they, of course, must be given in anatomical language, and this will be familiar only to those who are acquainted with that branch of our profession.

I will first proceed to describe the rise, insertion, use and operation of the muscles concerned in the process of parturition.

Those muscles most directly concerned in labor, are the abdominal and the real respiratory muscles; but in order for these muscles to act with any effective force, or to render anything like the aid which it was intended by the Almighty that they should do, there must be a fixed or firm foundation and a reliable starting-point for them to act upon. Then, having laid our foundation on the primeval

rocks, against whose mural fronts the winds and the waves may dash their furious blasts and surges in vain, a systematic description of all these operations would naturally commence with this foundation. When the abdominal muscles contract with sufficient force to make any essential expulsive effort, they must necessarily pull hard upon the points to which the two extremities of the muscles are attached, and the tendency to move those points will be in proportion to the contractile power of the muscles. The amount of labor accomplished by these muscles will be in proportion to the contractile power of the muscles, and the firmness with which the points of attachment are fixed and made immovable.

It cannot but be obvious to any person, on a moment's reflection, that if the points of attachment or insertion of these muscles are allowed to move when the muscles contract on themselves and consequently pull upon these points, that all the effective or expulsive power, or at least the greatest portion of it, that belongs to these muscles, is counteracted at once.

The various parts and processes of the pelvis being the points in which these muscles have their rise or insertion, it becomes all-important that the pelvis should be made stationary—that it should be safely anchored, and held so, with a cable of sufficient strength to resist the contractile power of the abdominal muscles, which are called into action to expel the contents of the *primæ viæ* or uterus.—This might be done by commencing at the feet, making them a basis of action for this part of our work, and then ascend from point to point until we arrive at the one concerned directly in parturition; but this would be a round-about way of coming at the real object of the whole operation. If we commence at the feet, we must first plant the



feet upon some firm or not easily movable platform, and they must be fixed in such a manner that they can be retained in that position, without inconvenience, for a length of time which they are required to serve that purpose. The feet then act as a basis for the work which is now undertaken : the leg, i. e., the *tibia* and the *fibula*, must be fixed on the foot by the co-operative contraction of the appropriate but usually antagonistical muscles—then the thigh must be fixed on the leg in the same manner—then the pelvis on the thigh in the same way ; but as I before remarked, this mode complicates the operation, and at the same time renders it far less effective. As brevity combined with efficiency I believe is always desirable, I therefore propose to do this business in a shorter way ; and I have other, and I think more weighty reasons, aside from brevity and simplicity. The first is, I think I can do it altogether better, and in a more workmanlike manner : the next is, I wish to connect with it a helping hand, which I cannot do with any probability of success if I commence with the feet as the basis of my operations.

In the construction of our Obstetrical Supporter, I had two grand objects in view : the first was, to facilitate the operation of parturition by every means that could be employed with perfect safety to the mother and child ; and while weighing this matter, and with a most intense study endeavoring to bring something out of chaos to aid me in my effort, the idea darted through my mind of the great importance of firmly fixing the two points of attachment of the abdominal muscles ; and from this time commenced the first favorable impression I entertained for the Supporter ; and to this end, and for this purpose, I have endeavored to adapt one portion of it.

The next object was to mitigate directly the sufferings of

parturient females, by every means that human invention could devise, or that God has placed within our reach. To accomplish the first of these designs, I found it to be indispensably necessary that the pelvis should be fixed with great firmness, for reasons that I have heretofore given; and for the above named reasons, and others to be given more in detail hereafter, I have fixed my basis of operations at the knees.

In order to prove the correctness of my position, and also to demonstrate beyond cavil of the skeptical that by commencing at this point all can be accomplished that could be done in any other way, (how much soever you might complicate the machinery,) I shall proceed to give the origin and insertion of the muscles belonging to this department of our machinery, (viz:) those belonging to the thigh and the pelvis.

The muscles on the outside of the pelvis, called muscles of the thigh, are composed of one layer before and three layers behind. The layer before consists of five muscles, two of which are usually described with another set.

The PECTINALIS—Arises, broad and fleshy, from the upper and anterior portion of the os pubis, immediately above the foramen thyroideum. Inserted into the anterior and superior part of the linea aspera of the os femoris, a little below the trochanter minor, by a flat and short tendon. Uses, to bring the thigh upwards and inwards, and to give it a degree of rotation outwards.

The TRICEPS ADDUCTOR FEMORIS.—I believe, according to the best modern anatomists, that under this appellation are comprehended three distinct (or nearly so) muscles:

1st. ADDUCTOR LONGUS FEMORIS—Arises, by a strong roundish tendon, from the upper and anterior part of the pubis and from the symphysis pubis on the inner side of

the pectinalis. Inserted, tendinous, near the middle of the posterior portion of the linea aspera, being continued for some way down.

2d. ADDUCTOR BREVIS FEMORIS—Arises, tendinous, from the os pubis, near its joining with the opposite os pubis, below and behind the former. Inserted, tendinous and fleshy, into the inner and upper part of the linea aspera from a little below the trochanter minor to the beginning of the insertion of the adductor longus.

3d. ADDUCTOR MAGNUS FEMORIS—Arises a little lower down than the former, near the symphysis pubis, tendinous and fleshy, from the tuberosity of the os ischium—the fibres there run outwards and downwards. Inserted into almost the whole length of the linea aspera and into a ridge above the internal condyle.

Use of these three muscles or triceps to bring the thigh inwards and upwards according to the different directions of their fibres, and to some extent to roll the thigh outwards.

The OBTURATOR EXTERNUS—Arises, fleshy, from the lower part of the os pubis and fore part of the inner crus of the ischium, surrounds the foramen thyroideum—a number of its fibres arising from the membranes that fill up that foramen, and are collected like rays towards a centre and pass outwards around the root of the back part of the cervix of the os femoris. Inserted by a strong tendon into the cavity of the inner and back part of the root of the trochanter major, adhering in its course more or less to the capsular ligament of the thigh bone. Use, to roll the thigh bone obliquely outwards, and to prevent the capsular ligament from being pinched in the joint.

Behind are, 1st. The GLUTEUS MAXIMUS—Arises, fleshy, from the posterior part of the spine of the os illium, a little higher up than the joining of the ilium with the os sa-

crum, from the whole external side of the os sacrum below the posterior spinous process of the os ilium, from the posterior sacro-ischial ligament and from the os coccygis.—All the fleshy fibres run obliquely forwards and a little downwards to form a very thick broad muscle, which is divided into a number of strong fasciculi. Inserted, by a strong thick and broad tendon, into the upper and outer part of the linea aspera, which is continued from the trochanter major for some way downwards as far as the origin of the short head of the biceps flexor cruris, and also into the fascia femoris. Use, to extend the thigh by pulling it directly backwards and a little outwards.

2d. *GLUTEUS MEDIUS*—Arises, fleshy, from the anterior superior spinous process of the os ilium, and from the outer edge of the spine of the ilium, except its posterior part, where it arises from the dorsum of that bone. Inserted, by a broad tendon, into the outer and upper margin of the trochanter major. Use, to draw the thigh bone outwards and a little backwards, to roll the thigh bone outwards, especially when it is bended.

The third layer consists of four muscles:

1st. The *GLUTEUS MINIMUS*—Arises, fleshy, from a ridge that is continued from the superior anterior spinous process of the os ilium, and from the middle of the dorsum of that bone as far back as its great niche. Inserted, by a strong tendon, into the anterior and superior part of the trochanter major. Use, to assist the former in pulling the thigh outwards and backwards and rolling it.

2d. *PYRIFORMIS*—Arises within the pelvis by three tendinous and fleshy origins from the second, third and fourth pieces of the os sacrum, from thence growing gradually narrower, it passes out of the pelvis below the niche in the posterior part of the os ilium, where it receives a few fleshy

fibres. Inserted, by a roundish tendon, into the upper part of the cavity of the inner side of the root of the trochanter major. Use, to move the thigh a little upwards and roll it outwards.

3d. GEMELLI—Arise by two distinct origins, the superior from the spinous process, and the inferior from the tuberosity of the os ischium, also from the posterior sacro-sciatic ligament. Inserted into the cavity of the inner side of the root of the trochanter major, on each side of the tendon of the obturator internus, to which they firmly adhere.—Use, to roll the thigh outwards and to preserve the tendon of the obturator internus from being injured by the hardness of that part of the os ischium over which it passes; also, to hinder it from starting out of its place while the muscle is in action.

4th. QUADRATUS FEMORIS—Arises, tendinous and fleshy, from the outside of the tuberosity of the os ischium, and running transversly, is inserted, fleshy, into the rough line continued from the root of the large trochanter to the root of the small one. Use, to roll the thigh outwards.

Next in order in this description will come those muscles situated on the thigh. They have sometimes been called muscles of the leg. They consist of one on the outside, two on the inside: four before and four behind.

These muscles also have their origin from some parts of the pelvis, and are inserted into the thigh bone near the knee, or into the head of the fibula at or a little below the knee. On the outside is

The TENSOR VAGINAE FEMORIS—Arises, by a tendinous and fleshy beginning, from the external part of the anterior superior spinous process of the os ilium. Inserted a little below the trochanter major into the inner side of the membranous fascia, which covers the outside of the thigh.—

Use, to stretch the membranous fascia, to assist in the adduction of the thigh, and somewhat in the rotation inwards.

On the inside are, 1st. The **SARTORIUS**—Arises, tendinous, from the anterior superior spinous process of the os ilium, soon becomes fleshy, runs down for some space on the rectus, and going obliquely inwards it passes over the vastus internus, and at about the middle of the os femoris over a part of the triceps, it runs further between the tendon of adductor magnus and that of the gracilis muscles. Inserted, by a broad and thin tendon, into the inner side of the tibia, near the inferior part of the tubercle. Use, to bend the leg obliquely inwards, or to bring one leg across the other.

2d. The **GRACILIS**—Arises, by a thin tendon, from the os pubis, near the symphysis of these two bones; soon grows fleshy and descends by the inside of the thigh. Is inserted, tendinous, into the tibia under sartorius. Use, to assist the sartorius.

Before are, 1st. The **RECTUS**—Arises, fleshy, from the anterior inferior spinous process of the os ilium, and, tendinous, from the dorsum of the ilium, a little above the acetabulum. Inserted, tendinous, into the upper part of the patella, from which a thin tendon runs down on the forepart of this bone to terminate in a thick strong ligament which is sent off from the inferior part of the patella and inserted into the tubercle of the tibia. Use, to extend the leg, and in a powerful manner, by the intervention of the patella, acting like a pulley.

2d. **SEMITENDINOSUS**—Arises, tendinous and fleshy, in common with the long head of the triceps, from the posterior part of the tuberosity of the os ischium, and sending down a long roundish tendon which ends flat, is inserted



into the inside of the ridge of the tibia, a little below its tubercle. Use, to bend the leg backwards and a little inwards.

3d. SEMIMEMBRANOSUS—Arises, tendinous, from the upper and posterior part of the tuberosity of the os ischium, sends down a broad flat tendon, which ends in a fleshy belly, and in its descent runs first on the forepart of the triceps, and, still lower, between it and the semitendinosus.—Inserted, tendinous, into the inner and back part of the head of the tibia. Use, to bend the leg and bring it directly backwards.

The two last muscles form what is called the inner hamstring.

4th. BICEPS FLEXOR CRURIS.—Arises by two distinct heads. The first, called the longus, arises in common with the semitendinosus from the posterior superior part of the tuberosity of the os ischium.

The second, called brevis, arises from the linea aspera, a little below the termination of the gluteus maximus, by an acute fleshy beginning, which soon grows broader as it descends to join with the first head a little above the external condyle of the os femoris. Inserted, by a strong tendon, into the superior part of the head of the fibula. Use, to bend the leg.

The tendon of this muscle forms what in vernacular language is called the outer hamstring.

5th. The Psoas MAGNUS—Arises, fleshy, from the side of the body and transverse process of the last dorsal vertebra, and in like manner, from those of the loins, by as many distinct slips.

On this muscle are situated two aponeurotic arches, called *ligamentum arcuatum internus* and *ligamentum arcuatum externus*. The former has an attachment on the one

hand to the points of the transverse processes, and on the other to the bodies of the upper lumbar vertebra. The latter passes from the anterior extremity of the former to the inferior margin of the last rib, embracing in its curve below the quadratus lumborum muscle.

The superior position or margin of both these arches give origin to a set of fibres which unite with the lesser muscle of the diaphragm, and serve to cut off more effectually any communication between the thoracic and abdominal cavities. Inserted, tendinous into the trochanter minor of the os femoris, and fleshy into that bone, a little below the same trochanter. Use, to bend the thigh forwards, or when the inferior extremity is fixed, it bends the body forwards.

It will be seen that the psoas magnus muscle is not directly connected with the pelvis independent of any other muscle, but a description of it is given on account of the important part which it acts by its direct and intimate connection with the lesser muscle of the diaphragm, and the manner in which it assists in forming the plain of the diaphragm, between which and that formed by the abdominal muscles the contents of the uterus are expelled, of this we shall say more hereafter.

There are also other connections which it has by a union of muscular fibres with the iliacus as they pass over the os pubis together, which renders it quite important in holding the pelvis; so much so, that it seemed to be necessary to give a description of it, and it has been described by some anatomists in connection with the iliacus internus, as being a biceps, or double headed muscle.

We will now proceed to describe the two muscles, of which I remarked at the commencement of this description that I should describe them in another place. They



are muscles of the thigh and pelvis, but they are more intimately connected with those which I have been describing in this place, than they are with those with which they are classed. They are

The *ILIACUS INTERNUS*—Arises, fleshy, from the transverse process of the last vertebra of the loins, from all the inner lip of the spine of the os ilium, from the edge of that bone, between its anterior spinous process and the acetabulum, and from most of the concave portion of the os ilium, it joins with the *psoas magnus* where it passes over the pubis by an interlacing of muscular fibres; it then begins to become tendinous, and is inserted, along with the *psoas*, into the trochanter minor. Use, to assist the *psoas* in bending the thigh, and to bring it directly forwards.

The *OBTURATOR INTERNUS*—Arises from more than half the internal circumference of the foramen thyroideum, formed by the os pubis and the os ischium, and from the superior part of that portion of the ischium where it joins the ilium. It forms, in union with some fibres from another, a roundish tendon that passes out of the pelvis between the posterior sacro-isciatic ligament and the tuberosity of the os ischium. Inserted, by a round tendon, into the large pit at the root of the trochanter major. Use, to roll the os femoris obliquely outwards.

Acting at the same time with those muscles already described, but somewhat antagonistically, or in nearly opposite directions, are two muscles which pass from the posterior portions of the pelvis to the lower ribs, the lower vertebra of the back and the vertebræ of the loins. These muscles contract in unison with the abdominal muscles, in labor, and in nearly the same direction. They are most particularly useful in their action, by holding firmly the posterior and inferior portions of the pelvis while the

abdominal muscles contract, with great force, on the anterior parts of it; and these two powers acting at the same time and in the same directions, maintain an equilibrium of action which could not be maintained without them. At the same time, they add very much to the stability of the pelvis during labor, particularly if the patient is so situated that these muscles can contract, as they were originally designed to do.

These muscles are—1st, *QUADRATUS LUMBORUM*—Arises, broad, tendinous and fleshy, from the posterior part of the spine of the os ilium. Inserted into the transverse processes of all the vertebræ of the loins, also into the last rib near the spine, and by a small tendon into the side of the last dorsal vertebra. Use, to move the loins to one side, to pull down the last rib, and, when both act together, to bend the loins.

2d, The *PSOAS PARVUS*—Arises, fleshy, from the sides of the superior vertebræ of the loins, and sends off a tendon of considerable length, which ends thin and broad, and is inserted into the brim of the pelvis, near the junction of the os ilium with the os pubis. Use, to assist the *psaos magnus* in bending the loins and holding the pelvis.

Thus it may be seen, by taking a glance over the rise and insertion of the muscles which I have described, that they all arise from some part of the pelvis, i. e., from the ilium, ischium, sacrum or pubis, or from the spines, crests, rami, tuberosities or other processes of the same—except the short head of the *biceps flexor cruris*, which very soon unites with the other, so that all the power of the muscle is made to bear on the tuberosity of the os ischium, and the *psaos magnus*—the importance of that and the manner in which it connects itself with those muscles that act directly upon the pelvis, I have already commented upon sufficiently.

A careful view of this subject will also show to the reader that here are quite a number, and most of them very powerful muscles, that have their origin or insertion from or in some part of the pelvis, and that the lower extremity of all these muscles is either above, at, or a little below the knee joint, consequently it is most easy to see the fallacy of going below the knee for a platform or support as a basis of action for these muscles. Whenever we go below the knee for a basis of action for the above described muscles, we are compelled to call into action another set of muscles which are quite numerous, and which have no necessary connection whatever with them, in order to perform the work for which we make use of the others, and are also entirely independent of them as far as the work is concerned which we assign them in connexion with the Obstetrical Supporter ; and bringing in this useless lumber, would render it much more tiresome, and far less effective for the patient. The place of support to obtain the most effective action of these muscles, is instinctively indicated to the parturient female, hence it is that she will always desire to have her knees held firmly during the active stage of parturition, although she knows not the philosophical reason why this desire is so urgent, nor have I myself ever before seen an attempt at an explanation of it.

It appears then that the great and important function of these muscles is to hold the pelvis with great firmness in all its parts, in such a manner that the strong contractile power of the abdominal muscles to expel the contents of the uterus, in the act of parturition, shall not cause the pelvis to vacillate or turn in any direction, which would seriously impair the effective action and contractile power of the abdominal muscles.

In order to make the knees the basis of action for the

muscles which I have described, while performing the work I have allotted them, I propose to plant them firmly in the loops of the main straps of the Obstetrical Supporter.

These loops contain sliding pads, so that the knee can always be placed directly upon them, not only holding them with great firmness, but also with perfect ease to the patient, however protracted the labor may be.

These muscles, in the order in which I have described them, have separate functions to perform; and in these various functions act independently or antagonistically, according as the power of the will is brought to bear upon them. But when the knee is firmly fixed in the loop of the Obstretical Supporter, an effort is made to extend the thighs on the pelvis; this effort being stoutly resisted and held fast by the Supporter, there is a simultaneous action of all these muscles together, consentrated upon one purpose; and although their separate actions as flexors, extensors, abductors, adductors, rotators, &c., might not be so great, still when they all act together, and their combined action is exerted to accomplish one object, it is easy to see that their power must be immense.

By an inherent principle, or the stimulus of the will, these muscles contract on themselves, pulling with great force on the point of attachment of each extremity; of course they will then pull upon each point of the pelvis to which they are attached. This attachment being on all the depending portions of the pelvis, they must necessarily hold it firmly and steadily when the abdominal muscles, which are attached to the superior portion of it, exert their powers upon it.

Having formed, as we believe, a solid foundation for the lower portion of the abdominal muscles to work upon, we

will turn our attention to their origin, or the attachment of their superior extremities.

It is equally necessary that this should be a firmly fixed point, as it is that the point of attachment for the lower extremity of the muscles should be so. And although the means of doing this is instinctively indicated to the parturient female, still like the case of the lower extremities, I have never heard it explained, or an explanation attempted; and in order to delineate the philosophical operation, it will be necessary to turn again to the muscles, and work it out on that great chess-board of nature.

As the abdominal muscles have either their rise or insertion from or into the sternum and its cartilages, from the ribs or their cartilaginous extremities, it will be obviously necessary to fix these points, otherwise what we gain by the fixture of the pelvis we lose by the absence of an equal support for the superior extremity of those muscles. In laying out this work of making a fixed point of the ribs and sternum, we will commence with the muscles situated on the anterior part of the thorax :

These may be divided into two layers, the first layer consisting of one muscle :

The PECTORALIS MAJOR—Arises from the cartilaginous extremities of the fifth and sixth ribs, where it usually mixes and intermixes with the external oblique muscle of the abdomen, from about the whole length of the sternum, and from near half of the anterior part of the clavical ; the fibres then turn towards the axilla, in a folded manner.—Inserted, by two broad tendons, which cross each other at the upper and inner part of the os humeri, above the insertion of the deltoid muscle and outer side of the groove for holding the tendon of the long head of the biceps.—

Use, to move the arm forwards and obliquely upwards towards the sternum.

The second layer consists of three muscles :

1st, The *SUBCLAVIUS*—Arises from the cartilage that joins the first rib to the sternum. Inserted, after becoming fleshy, into the inferior part of the clavical, which it occupies to within an inch of the sternum, as far outwards as its connection by ligament with the coracoid process of the scapula. Use, to pull the clavical.

2d, The *PECTORALIS MINOR*—Arises, tendinous and fleshy, from the upper edge of the third, fourth and fifth ribs, near where they join with their cartilages. Inserted, tendinous, into the coracoid process of the scapula. Use, to bring the scapula forwards and downwards, and to raise the ribs upwards.

3d, The *SERRATUS MAGNUS*—Arises from the nine superior ribs, by an equal number of fleshy digitations, resembling the teeth of a saw. Inserted, fleshy, into the whole base of the scapula, internally, between the insertion of the romboïd and the origin of the subscapularis muscle, being folded about the two angles of the scapula. Use, to move the scapula forwards, and when the scapula is forcibly raised, to draw upwards the ribs. The muscles within the thorax form one pair.

The *TRIANGULARIS*, or *STERNOCOSTALIS*—Arises, fleshy, and a little tendinous, from all the length of the cartilago ensiformis, laterally, and from the edge of the lower half of the middle bone of the sternum, from whence its fibres ascend obliquely upwards and outwards. Inserted, by three triangular terminations, into the lower edge of the cartilages of the third fourth and fifth ribs, near the union of the cartilages with the ribs. Use, to depress the car-

tilages and the extremities, and consequently to assist in contracting the cavity of the thorax.

The muscles situated between the ribs, the *intercostalis externi* and the *intercostalis interni*, I have omitted, although they perform quite an important part in this work, by their assistance to raise the ribs, and to secure and maintain a uniformity of action between all the ribs ; so that when a muscle operates to hold one of the ribs, through the medium of the operation of these muscles, they would all be held by the same power, being firmly bound together by the intercostal muscles. As those muscles which we design to hold the ribs, connect the ribs and the scapula, and as the scapula must act in this situation as a basis for these muscles, and as the scapula is naturally a movable body, and that to a very great extent, it now becomes necessary to devise some means by which we may hold it with sufficient power to have it serve our purpose.

We will now take up the muscles situated on the posterior part of the trunk. These are usually divided into four layers and a single-pair.

The first layer consists of a single pair of tremendous power ; they cover almost the whole posterior part of the trunk, and I think they are the most perfect and beautiful pair of muscles in the whole human system. The single muscle is called,

The *TRAPESIUS*, OR *CUCULARIS*—Arises, by a strong round tendon, from the lower part of the protuberance in the middle of the *os occipitis*, behind, and by their membranous tendon, from the rough curved line that extends from the protuberance towards the mastoid process of the temporal bone ; runs down along the nape of the neck, where it seems to arise from its fellow, and covers the spinous processes of the superior vertebræ of the neck ; it also arises



from the spinous processes of the two inferior servical vertebræ, and from the spinous processes of all the dorsal vertebræ, adhering by an interweaving of tendinous fibres to its fellow, the entire length of its origin. The junction of those tendons forms a sort of elliptical expansion on the back of the neck. Inserted, fleshy, into the posterior half of the clavicle, tendinous and fleshy, into the acromion, and into almost all the spine of the scapula. Use, it moves the scapula according to the three different directions of its fibres; for the upper descending fibres draw it upwards and somewhat obliquely backwards, the middle transverse straight fibres draw it directly backwards, and the inferior ascending fibres draw it obliquely downwards and backwards.

The two trapesii, taken together, have some resemblance to the monks' cowl, hanging over the neck; hence the name of cucularis is sometimes given to them. When the trapezius is dissected on both sides, the two muscles represent a trapezium, or diamond shaped quadrangle on the back of the shoulders.

2d. The *LATISSIMUS DORSI*—Arises, by a broad thin tendon, from the posterior part of the spine of the os ilium, from all the spinous processes of the os sacrum, and vertebræ of the loins, and from the seven inferior ones of the vertebræ of the back; also, tendinous and fleshy, from the extremities of the three or four inferior ribs, a little beyond the cartilages, by as many distinct slips—the inferior fibres ascend obliquely, and the superior run transversely over the inferior angle of the scapula towards the axilla, where they are collected, twisted and folded; and here some additional fibres of the muscle have their origin, from the superior angle of the scapula. Inserted, by a strong thin tendon, into the inner edge of the groove for lodging the tendon of the long head of the biceps flexor cubiti. Use,



to pull the arm backwards and downwards, and to roll the humerus.

On the back we have two muscles, or one divided into two portions, which we must press into our service. When spoken of as one muscle, it is called the RHOMBOIDEUS.

1st. The RHOMBOIDEUS MAJOR—Arises, tendinous, from the spinous processes of the five superior dorsal vertebræ. Inserted into all the base of the scapula, below its spine.—Use, to draw the scapula obliquely upwards and directly inwards.

2d. The RHOMBOIDEUS MINOR—Arises, tendinous, from the spinous processes of the three inferior vertebræ of the neck, and from the ligamentum nuchæ. Inserted into the base of the scapula, opposite to its spine. Use, to assist the former.

LEVATOR SCAPULÆ—Arises, tendinous and fleshy, from the transverse processes of the five uppermost vertebræ of the neck by as many distinct slips, which soon unite to form a muscle that runs downwards and outwards. Inserted, fleshy, into the superior angle of the scapula. Use, to pull the scapula upwards, and a little forwards.

It will now readily be seen that when the last described muscles act antagonistically, and in conjunction with those of the anterior part of the thorax, that they will fix the scapula with great firmness in a superior posterior and inferior direction; and I believe these are cables and anchors that will hold against the opposition of almost any terrific storm, however great may be its violence.

We will now see if we can fix the scapula anteriorly. If we succeed in doing so, it will answer our purpose very well. We will now turn our attention to the muscles that pass from the scapula to the arm or os humeri. They are:

1st. SUPRA SPINATUS—Arises, fleshy, from all that part

of the base of the scapula that is above its spine, also, from the spine and superior costa ; passes under the acromi-  
on, and adheres to the capsular ligament of the os humeri. Inserted, tendinous, into that part of the large protuberance on the head of the os humeri that is next the groove for lodging the tendon of the long head of the biceps.— Use, to raise the arm upwards.

2d. The *INFRA SPINATUS*—*Arises*, fleshy, from all that part of the base of the scapula that is between its spine and inferior angle, and from the spine as far as the cervix of the scapula. The fibres ascend and descend obliquely towards the tendon in the middle of the muscle which runs forwards and adheres to the capsular ligament. Inserted, by a thick short tendon, into the upper and middle part of the large protuberance on the head of the os humeri. Use, to roll the humerus outwards, and to assist to raise and support it when raised.

3d. The *TERES MINOR*—*Arises*, fleshy, from all the round edge of the inferior costa of the scapula, and runs forward along the inferior edge of the *infra-spinatus*, and adheres to the ligament. Inserted, tendinous, into the back part of the large protuberance on the head of the os humeri, a little behind and below the termination of the last named muscle. Use, to roll the humerus outwards, and to draw it backwards.

4. The *TERES MAJOR*—*Arises*, fleshy, from the inferior angle of the scapula, and from all that portion of its inferior costa that is rough and thicker than the rest ; its fleshy fibres are continued over part of the *infra-spinatus* muscle, to which they firmly adhere. Inserted, by a broad, short and thin tendon, into the ridge at the inner side of the groove for lodging the tendon of the long head of the *biceps flexor cubiti*, along with the *latissimus dorsi*. Use, to roll the hu-

merous inwards, and to draw it backwards and downwards.

The two muscles before the scapula are :

1st. The *DELTOIDES*—Arises, fleshy, from all the posterior part of the clavicle that the pectoralis major does not occupy, tendinous and fleshy, from the acromion and inferior margin of almost the whole spine of the scapula, opposite to the insertion of the cucularis muscle ; from these origins it runs in three different directions, i. e., from the clavicle downwards and outwards, from the spine of the scapula outwards, forwards and downwards, and from the acromion straight downwards, and is composed of a number of fasciculi which form a strong fleshy muscle that covers the anterior part of the joint of the os humeri. Inserted, tendinous, into a rough protuberance in the outer side of the os humeri, near its middle, where the fibres of this muscle intermix with some part of the brachialis externus muscle. Use, to pull the arm directly outwards and upwards, and a little forwards and backward, according to the directions of its fibres, and when they all act together they pull the arm forwards.

2d. The *CORACO BRACHIALIS*—Arises, tendinous and fleshy, from the forepart of the coracoid process of the scapula, adhering in its descent to the short head of the biceps. Inserted, tendinous and fleshy, into near the centre of the internal part of the os humeri. Use, to carry the arm forwards and a little upwards.

The *SUBSCAPULARIS*—Arises, fleshy, from all the base of the scapula internally, and from the superior and inferior costæ, being composed of a number of tendinous and fleshy fasciculi which leave prints on the bone : they all join together and fill up the hollow of the scapula, and pass over the joint adhering to the capsular ligament. Inserted, tendinous, into the upper part of the protuberance on the in-

ner side of the head of the os humeri. Use, to roll the humerus inwards and to draw it to the side of the body.

The **BICEPS FLEXOR CUBITI**—Arises by two heads, as the name indicates. The first, or outermost, called longus, begins, tendinous, from the upper edge of the glenoid cavity of the scapula, passes over the head of the os humeri within the joint, and in its descent, without the joint, is inclosed in a groove near the head of the os humeri by a membranous ligament that proceeds from the capsular ligament and the adjacent tendons.

The second, or innermost head, called brevis, arises, tendinous and fleshy, from the coracoid process of the scapula, in common with the coraco-brachialis muscle. A little below the middle of the fore part of the os humeri these heads unite and are inserted into the tubercle on the upper end of the radius by a strong roundish tendon. Use, to turn the hand supine and to bend the fore arm.

At the bending of the fore arm or elbow, where it begins to grow tendinous, it sends off an aponeurosis, which covers all the muscles on the inside of the fore arm and joins with another tendinous membrane which is sent off from the triceps extensor cubiti, which covers all the muscles on the outside of the fore arm, and a number of the fibres from the opposite sides decussate each other. It serves to strengthen the muscles very much by keeping them from swelling too much outwardly when in action or strongly contracted.

The **TRICEPS EXTENSOR CUBITI**—Arises by three heads, the first called longus, somewhat broad and tendinous from the inferior costa of the scapula near its cervix. The second head, called brevis, arises by an acute tendinous and fleshy beginning from the back part of the os humeri, a little below its head on the outer part. The third head, called brachialis externus, arises by an acute beginning from the

back part of the os humeri. These three heads unite a little lower than the insertion of the teres major and cover the whole posterior part of the humerus. Inserted into the upper and external part of the process of the ulna, called olecranon, and partly into the condyles of the os humeri. Use, to extend the fore arm.

I think it will require no telescope, or other optical instrument save that of an ordinary perception, to discover that when these muscles act conjointly and contract on themselves, that, from their attachment to the various processes of the scapula, they will hold it with a firmness and a power not easily overcome by any antagonistic or opposing power. It will be seen by a bird's-eye view of the description of these muscles, that they have their origin from the various points and angles of the scapula, and that they all pass in a forward direction, to be inserted into various portions of the bone of the arm, and in a few instances into those of the fore arm. Hence it will follow as a matter of necessity, that in order for these muscles to perform the work that I have marked out for them, viz: to hold the scapula and make a fixed point of the same, it will be necessary for them to have a fixed point or basis of action, anterior to the direction of their fibres: this we shall see to hereafter, as we continue to put together the wheelwork of our machinery.

This set of muscles, if we make them work agreeably to our expectations, we think will complete the circle which we left unfinished in our previous description, and will make the scapula a fixed centre of motion for the various agents which we shall hereafter require to move upon it.

This being settled, we turn to the anterior basis of action, and for this we shall make use of the hands. We cannot, as at the inferior extremities, fix our basis of action

at the distal ends of the muscles that we call into action in labor—therefore, not having the choice as in the other case, we take the next most convenient point. But in this case we have nothing to loose, except in the employment of a set of muscles that do not directly belong to the work; while, in the case of the lower extremities, if we go below the knees we lose nearly all the benefits of the back pad; and that we are correct in using the hands as a basis of action in the upper extremities, we have the evidence of the instinctive or natural calls of the parturient female herself.

For this purpose the hands must grasp firmly upon some fixed point—then put the muscles that pass from the fore arm to the hand upon the stretch, which will fix the fore arm on the hand. Then the muscles passing from the arm to the fore arm will contract on themselves and fix the arm on the forearm. Then the muscles passing from the anterior points and angles of the scapula, running forwards and inserted into the arm, being those mentioned in the last description, will contract strongly and firmly on themselves, and, of course, will pull hard on each point of attachment, and the necessary result will be that they will fix the scapula on the arm, in an anterior direction, with an unshaken stability. When these muscles contract, they will have a tendency to pull the scapula downwards, or forwards and downwards. This will excite those muscles that I have described as having their attachment to the posterior and superior portions of the scapula, and they will contract firmly, and by the strength of their contractile power they will fix the scapula with a reliable constancy between these strongly-exerted antagonistical powers. Under these circumstances, we can lay hold of it from another direction, with great reliance upon the stability with which it is fixed in that situation.



Now when the superior extremity of the abdominal muscles, which are attached to the sternum, cartilages and ribs, contract with a force to draw them downwards, they will excite to action the muscles which we have described on the anterior and inferior part of the trunk, which it will be recollected are attached to the ribs and sternum inferiorly, and to the scapula and clavicle superiorly ; and when these contract with a tendency to pull upon the scapula, it will excite still more to contraction the levators scapulæ and the superior fibres of the trapesius, which will fix the scapula with more stability. The scapula now being a firmly fixed point, these muscles may pull upon it with perfect impunity.

The opposite extremities of these muscles being attached to the ribs, cartilages and sternum, it is very evident that when they contract firmly on the scapula they will hold the ribs and sternum to the extent of their contractile power. Thus we have fixed both the points on which the abdominal muscles contract to expel the contents of the uterus in the act of child-birth, and hence it is that parturient females express an urgent desire, instinctively indicated to them, as I have before remarked, to pull with their hands more or less, or to grasp something with the hands, so as to fix that chain of muscles which I have described ; and now, the reason appears so obvious, that a tyro ought not to mistake the indications.

These wants we think we have amply provided for in the Obstetrical Supporter, by placing two handles within the reach of the patient, well fitted to the hand, and covered with velvet so that the patient may grasp them firmly and with perfect ease to herself.

These handles are made fast by an attachment to each end of a strap that passes through the loops and over the

movable knee pads, so that the patient may pull on them as hard or as lightly as she pleases; and in the same proportion that she pulls on these handles she increases the support on the knees.

We will now turn our attention to the very important agents more immediately and directly connected in this great work, i. e.; the safest, easiest, and the most expeditious mode of delivering a female from the excruciating miseries of child-birth. This will bring us to treat of the abdominal muscles. They are the most efficient, powerful and direct agents of all the voluntary muscles that are called into action in the great work of re-producing the species, and those more immediately concerned in respiration come into the next class.

The abdominal muscles consist of three layers on each side of the abdomen, and one layer in front.

1st. The *OBLIQUUS DESCENDENS EXTERNUS*—Arises by eight heads from the lower edges of as many of the inferior ribs, at a little distance from their cartilages. It always intermixes in a serrated manner with portions of the serratus major anticus, and frequently coheres to the pectoralis major, intercostalis and latissimus dorsi, which last covers the edge of a portion of it extending from the last rib to the spine of the ilium. It interdigitates by its five upper heads with the serratus major anticus, and by the three lower with the latissimus dorsi, where the latter arises from the ribs; a slip from the pectoralis covers the upper head.

From these origins the fibres run obliquely downwards and outwards, or forwards, and terminate in the anterior half of the spine of the ilium, and in a tendinous membrane whose fibres are continued in the same direction until they meet the fibres of the corresponding tendon of the other side, in a line that extends from the ensiform cartilage to the symphysis pubis.



This line, from its white appearance, is called *linea alba*, which is owing to the connection of the different tendons uniting with each other without the intervention of muscular fibres or any vessels that circulate red blood. On each side of this line are situated two long narrow muscles that do away with the white line; but exterior to these muscles the tendons are again united and form a white line on each side, which, from its half-moon shape, is called *linea semilunaris*.

At the lower part, or near the os pubis, the fibres are arranged in such a manner as to form two very firm strong bands, called columns, which seem to increase the power of the muscle; they form the abdominal ring, and give passage to some vessels, &c.

The uppermost of these two columns passes obliquely downwards and is inserted into the os pubis of the opposite side, near the symphysis, decussating the fibres of the corresponding columns of the other side. The lower edge of the tendon of this muscle is attached to the anterior superior spinous process of the os ilium, and is there blended more or less with the fascia that passes down the thigh.—From this process the edge of the tendon is extended, in such a manner as somewhat to resemble the cord of a bow, across the concavity formed by the os ilium and the os pubis, and is inserted into the pubis near its symphysis. As it passes from the spine of the ilium to the pubis, the edge of the tendon is folded inward so that the edge of the membranous tendon is doubled.

That part of it which is turned inwards is called Gimbernat's ligament; it commences small, continues so for some part of the way, but becomes larger, or at least much broader, just before its termination. The broad extremity is inserted into the small process of the os pubis, near the sym-

physis, and into a ridge which extends backwards from the process to the brim of the pelvis, so that the tendinous membrane at this part is doubled—the part which is turned being about an inch broad at the place of its insertion into the pubis. The edge formed by a fold of this membrane is called Paupart's ligament, and is very firm and strong, owing to the membrane being thicker at this place. It is the edge of the Paupart's ligament which is inserted into the ridge of the pubis, or its crest.

All these parts of this large and very strong muscle are covered with a sheath, composed of very strong and firm fascia, which holds them steadily in their places; and also intermix their fibres with the fascia, which extends itself over a very large surface, increasing the contractile power of the various parts of this muscle to a very great extent.

The manner in which the fascia lata and the fascia superficialis abdominis insinuate themselves among the different parts of these muscles, so as to bind them down, hold them together, and apparently stimulate their contractile power, secures a great and important action, as well as an additional contractile power. The external oblique muscles compress the abdomen with a wonderful power. Although, from its description, it may be seen that it is a muscle of great strength, still the power which it exerts many times to expel the contents of the uterus is truly surprising. If the diaphragm is in a passive state, they force it upwards, by pressing the abdominal viscera against it, and thus they are important agents in producing expiration, and its modifications of coughing, sneezing, etc. They bend the spine forwards, and, by so doing, they approach the thorax towards the pelvis. When one acts separately, it bends the trunk obliquely to one side, or to the side on which it is situated.

2d. The *OBLIQUUS ASCENDENS INTERNUS*—Arises from the spine of the ilium, the whole length of that portion between the posterior and superior spinous process, from the os sacrum, and the three inferior lumbar vertebræ, by a tendon, or what is more usually called fascia lumborum, which serves in common for this muscle, for the serratus posticus, for the latissimus dorsi, and Paupart's ligament, at the middle of which it sends off the beginning of the eremaster muscle. Some important vessels pass under this thin edge. Inserted into the cartilago ensiformis, into the cartilages of the seventh and those of the false ribs; but the upper part of this muscle is more thin than the other, and resembles somewhat an aponeurosis, or tendinous membrane: it does not grow much fleshy until near the tenth rib. Here its tendon evidently divides into two layers. The anterior layer, with a great part of the inferior portion of the posterior one, joins at this point the tendon of the external oblique muscle, and passes over the rectus and is inserted into the whole length of the linea alba.

The remaining part of the posterior layer joins the tendon of the transversalis muscle, about midway between the umbilicus and the os pubis; below this very few of the fibers of the posterior layer are seen, for the remainder of it passes before the rectus muscle and is then inserted into the linea alba; so that the whole tendon of the external oblique muscle, with the anterior layer of the internal oblique muscle, passes before the rectus muscle; and the whole posterior layer of the internal oblique, together with the whole tendon of the transversalis muscle, except at the inferior part; that passes behind the rectus, and is inserted into the linea alba. At its extreme inferior part it is inserted into the anterior part of the os pubis. Use, to assist the former, but it bends the trunk in an opposite direction.

3d. The **TRANSVERSALIS**—Arises, tendinous, but soon becomes fleshy, from the inner or back part of the cartilages of the seven lower ribs: from this point some of its fibres mix with and are continued along with those of the diaphragm and intercostal muscles, by a broad thin tendon: it is connected with the transverse process of the last vertebra of the back, and the four superior vertebræ of the loins, fleshy, from the whole spine of the os ilium, internally, and from the tendon of the external oblique muscle, where it intermixes with some fibres from the internal oblique. Inserted into the cartilago ensiformis, and into the whole length of the linea alba, except its lowermost part. Use, to support and firmly compress the abdominal viscera; and it is exceedingly well adapted to the latter purpose, so much so, that it might with much propriety be called the proper constrictor of the abdomen.

The long central muscle, called **RECTUS ABDOMINIS**—Arises by two heads from the ligament of the cartilage which joins the two osæ pubis to each other—runs upwards the whole length and parallel to the linea alba, growing broader and thinner as it ascends. Inserted into the cartilages of the three inferior true ribs, and frequently intermixed with some fibres from the pectoral muscle.

This muscle is usually divided into three tendinous intersections—the first, at the umbilicus—the second, where it turns over the cartilage of the seventh rib—the third, about midway between these points; and there is frequently a half intersection below the umbilicus.

These intersections, or linæ transversæ, seldom penetrate through the muscle—adhere quite firmly to the anterior part of the sheath, but very slightly to the posterior layer. Use, to compress the fore part, but particularly the lower part of the abdomen; to bend the trunk forwards, and, when the superior extremity is fixed, to raise the pelvis.

The structure and divisions of this muscle show the wonderful adaptation with which nature has fitted organs or parts to the functions which they are to perform. The different parts of this muscle will contract separately and independently of the others, and it is said to do it with equal power and efficacy as if the whole muscle was called into action at the same time ; and when any particular part of the muscle contracts, it acts directly upon that part of the abdomen with which it is connected ; and, of course, when they all contract together, all the parts connected with it are affected at the same time.

But another advantage is gained by the structure of this muscle, aside from the fact that it will act upon a local point and no other. When the whole of this muscle acts together, it only produces a slight undulation on the surface of the abdomen—whereas, if a muscle of that size and length should contract from one end to the other by a continuous set of fibres, it would produce so large a tumor that it would not only be inconvenient, but in that situation would very much disfigure a person.

The short central muscle is called PYRAMIDALIS—Arises along with the rectus, runs upward, enclosed in the same sheath, and is inserted by an acute termination more than half-way between the os pubis and the umbilicus, into the linea alba and inner edge of the rectus muscle. Its Use is probably to assist the inferior part of the rectus. I say probably, because it is sometimes wanting, without any great inconvenience.

This closes my description of the abdominal muscles, or those on the external parts of it. Of their use, power and benefit in parturition it is not easy to mistake ; but I shall say more of that hereafter, and probably in a more connected form ; or, at least, I shall endeavor to put all of this ma-

chine together, both the natural and the artificial, and show the manner in which they co-operate and the assistance that one renders to the other, in such a manner that the mind's eye can take them in at a glance. So vastly important are they to the parturient female, when a fair opportunity for them to exert themselves exists, that they must not be passed over lightly.

There is one other muscle, though usually considered to be almost entirely appropriated to respiration, and in fact is a very important agent and performs a very large share of that life-sustaining act which we call breathing, still so great is the assistance which it gives when acting in conjunction with the abdominal muscles in the act of parturition, that it certainly deserves a few passing remarks by way of description; and so immediately commingled and intimately connected are the actions of all these muscles, that it seems fully to warrant a description of this. It is called the DIAPHRAGM. It is a Greek word, and literally translated it means *interseptum*. It is the transverse partition between the abdomen and the thorax.

It is not merely a transverse partition betwixt these two cavities, but it is a vaulted division betwixt the thorax and abdomen; and not only is the middle raised into a vaulted form, but its obliquity is such that though its forepart is as high as the sternum, its lower and back part comes from near the pelvis, from the lowest vertebræ of the loins. It is a thin muscle, and very broad in the middle of it reaching as high on each side, in the thorax of the skeleton as the fourth rib. It is commonly divided into two portions.

The superior or great muscle of the diaphragm, which arises by distinct fleshy fibres from the cartilago ensiformis, from the cartilages of the seventh and all the superior ribs of both sides. The fibres from the ensiform cartilage, and



from the seventh and eighth ribs, run obliquely upwards and outwards—from the ninth and tenth, transversely inwards and upwards, and from the eleventh and twelfth obliquely upwards.

From these different origins the fibres run like radii from a circumference to a centre. Inserted into a cordiform tendon of considerable breadth, which is situated in the middle of the diaphragm, and in which therefore fibres from opposite sides are interlaced.

There is a perforation towards the right side which transmits the venacava inferior, and the mediastinum and the pericardium are connected to the upper convex part of it.

The inferior or lesser muscle, or the appendix of the diaphragm, arises from the second, third and fourth lumbar vertebræ, by eight fleshy tongues, or heads, of which two in the middle are longest: they are called *crura*, and are usually tendinous.

The aorta and thoracic duct pass between these, and the great sympathetic nerve and vena azygas pass on the outside and perforate the shorter heads. Those muscular fibres which run obliquely upwards and forwards from the two middle fleshy columns, decussate and leave an open space which transmits the œsophagus and eighth pair of nerves. On either side of the lower portion of this muscle are formed two bow-shaped ligaments, inserted, by strong fleshy fibres, into the posterior portion of the middle tendon.

The diaphragm is the principal agent in respiration, and more particularly that of inspiration. For where these different fibres act to bring themselves into a plain, by their simultaneous action on the middle tendon, by which the cavity of the thorax is enlarged, particularly near the sides where the lungs are mostly situated, (it is a well-known fact that the lungs are always contiguous to the inside of

the thorax and upper side of the diaphragm,) the air rushes into them to fill a vacuum or increased space. This muscle is assisted by the two rows of intercostals which elevate the ribs and the cavity of the thorax is still more enlarged.

During violent exercise, or whatever other cause drives the blood to the lungs with increased celerity, the pectoral muscles, the *sarati*, *antici majoris*, *sarati posteri superioris* and *scaleni* muscles affect the lateral dilatation of the thorax, when brought into action; and the muscles which arise from the upper part of the thorax also assist by fixing the scapula, and then move the ribs on the scapula in laborious breathing. The diaphragm is pushed up, in rather a relaxed state, during expiration, by the action of the abdominal muscles contracting on the viscera of the abdomen, and they press it upwards at the same time that their combined action with the *sterno costalis*, *serrati*, and *postici inferiores* pull down the ribs, and by the elasticity of the cartilages that join the ribs to the sternum they derive a powerful assistance; hence it can readily be seen how the cavity of the thorax is diminished and the air expelled from the lungs with much ease. The diaphragm is however the principal agent in the dilatation of the chest in the act of inspiration. The *quadrati lumborum*, the *sacro lumbalis*, and the *longissimus dorsi*, all assist laborious expiration from dyspnea, in asthmatic affections, etc., when the scapula is fixed, by pulling down the ribs. The diaphragm is arched when relaxed, the top of which is very nearly on a level with the anterior portion of the fourth rib. This arch is flattened when the diaphragm is contracted, though the cordiform tendon is said to be very little depressed, and of course in proportion as the abdominal viscera are pressed downward, the cavity of the thorax will be increased: this



downward pressure of the viscera causes that swelling or protrusion of the abdomen which we observe during inspiration.

The diaphragm and the abdominal muscles usually antagonise each other, from the fact that they contract alternately. Occasionally, however, they contract in perfect unison, and this is the fact when they are called upon to act in that great and important work for which we have brought them into notice at this time—that is, to assist the womb in the expulsion of the fœtus, at that momentous period when a fellow-being is about being brought into existence; or rather to be made conscious of its existence.—When they do act in unison, they compress the viscera and their contents between the two plains which they form with each other, with such a tremendous force as sometimes to cause hernial protrusions. This is not the case, however, in labor, as the womb lays anterior to the other viscera, and consequently occupies the region where hernial protrusions take place. This fact obviates the danger at such times.

Finally, the diaphragm is a noble muscle, and might well call forth from Hallar that flattering cognomen, "*Noblissimus post cor musculus*." We may smile at Buffon, who was a much better geologist than anatomist; and after all, it is no great wonder that he should mistake its central tendon for a nervous centre, the place from which originate all our emotions, and the seat of the soul.

This closes what we have to say on the muscles by way of description, and we believe that the description embraces nearly all that are directly concerned in the process of parturition. We have mentioned, or briefly referred to, most of those that are indirectly called into action in the performance of this great work. It is nothing less than

the fulfilment of that edict which has gone abroad on all the face of the earth, from pole to pole, embracing latitudes and longitudes to their utmost extent, and it comes from no less a personage than Him who made heaven and earth and sea—who has said, “multiply and replenish the earth, and add to the number of those who shall add to the glory of my creative power.”

As guardians of the common weal of mankind, it is not too much to expect of us that we should employ our minds and inventive powers to soothe and alleviate the sufferings of that portion of our race on whom the great burthen of the fulfilment of that command seems to fall with an almost crushing power; and if we can accomplish anything in this way, let us not do it with a grudging hand, but freely exert ourselves to the last extent of our abilities. Who, then, among the wise men who have an oriental abode at this day, shall dive into the unfathomable depths of futurity, and bring to our view the importance that may be attached to the safe delivery of one single case of child-birth. The worth of the mother may, to some extent, be appreciated by us; but the value of the one to whom she is about to give birth, either to its friends or to the world at large, can only be known to an Omniscent God Himself! Who but Him can tell whether the unborn will not be one who shall sway sceptres, kingdoms, kings and empires, as the gamester moves his miniature great ones across the plaze of the chess-board? or whether, in science and philosophy, he shall not be a Franklin or a Newton, a Galileo or a Harvey; or in war a Washington, a Napoleon, a Cæsar or an Alexander? The fact that this offspring may be equal to any of these, shows the great importance attached to the safe delivery of the same; and it also shows another important fact in connection with the above, that

it never should be entrusted in the hands of quacks and ignorami, who stalk abroad on the earth like a destructive mildew that blights the hyacinth and the rose ere their verdure and their sweet perfumes gladden the senses of an expectant world. And he who shall facilitate this work, and at the same time add to its safety, shall not only assist in the obedience of God's command, but be doing a service to his country of more importance and of greater value than all the gold contained in the vast regions of California, or all the diamonds that ever sparkled on the diadems of monarchs. Then it is certainly worth our time, our exertions, our highest aims and most untiring efforts, mental and bodily, aided by all the inventive genius that we have power to cultivate or otherwise command, and concentrate them all on the one great object to project, and bring forth some instrument that shall render safe and easy this great work; and then most humbly and devoutly invoke the aid and the blessings of God that we may succeed in these our laudable and praiseworthy objects. This is the work assigned, and, as far as we are concerned, with all confidence of success, to the Obstetrical Supporter.

I have previously remarked that I had two principal designs in the application of the Supporter to obstetrical purposes; and in presenting it to the consideration of my professional brethren for their approval or disapproval, as its benefits or inutility may strike their judgments, I might add a third, which, perhaps, had ought to have been the first one named—that is, the increased safety which it affords to the parturient patient in those critical, and, in most cases, dreadful moments of her life. In those terror-fraught moments, big with important events which are about to transpire with the patient, she certainly requires all the aid and support that can by any means be afforded her to

inspire and sustain all the fortitude, hope and courage which lies in the power of temporal things to impart to her ; and let us never tire or fear of doing too much in the right way to enable the poor suffering female to pass thro' this soul-trying ordeal. These important results we also most confidently claim for the Supporter, and only ask, by way of confirmation, a fair trial by those who are blind in unbelief.

As the description of this Instrument has heretofore been but partial, and quite imperfect, I shall now proceed to a more minute account of it ; and however imperfect it may be, I hope to render myself intelligible to those most directly interested in its operation.

It has, 1st, a back pad, which is composed of a central metallic plate to give and maintain its form : this is covered on one side with leather of some kind, such as strikes the fancy of the maker as being the best—on the other side it is nicely cushioned, so that it will press upon the back with all of its inner surface and with perfect ease, even when the pressure is very great. The pad is of somewhat conical or cordiform shape, with the base of the cone upwards : it is convex externally, and concave internally : it fits very nicely to the back, which holds it firmly and with ease, and may be put on or moved so as to apply the pressure directly over the seat of the pain, or the part that requires to be held. The manner in which this pad fits the back, and the amount of pressure which this instrument enables the patient to apply to it, holds the back most decidedly better than any other mode that I have ever seen tried ; nor can I now conceive of a better plan to accomplish the important object allotted to this division of the Supporter. I never could conceive why this method should be objected to by any person who had the least idea that that

support was ever required for the back in any case ; and certainly it is a general rule, and it is well known to all who have any knowledge on the subject, that females require the back to be supported, and usually they require the support to be very strongly applied during child-birth. The exceptions to this statement are barely sufficient to make it a general rule. Then, since this support is almost universally required, it seems to me to be the height of folly to reject the very best mode that has ever been devised to make and apply that support. And it is equally well known to all that this support, or counter-pressure upon the back, when judiciously and properly applied, mitigates the pain and the suffering consequent therefrom to a very great extent, and many times relieves it entirely. Then I repeat, that no philanthropist will reject or oppose the best means to relieve the sufferings of our fellow-beings ; and particularly to that portion of them to whom our best gratitude is due.

2d. The main strap, which may be made of leather or other material of sufficient strength to hold the amount of pressure that is necessary to apply to it. The force applied to these straps varies very much, and this variation depends upon the expulsive efforts of the voluntary system and the contractile power of the muscles which are engaged. In healthy and muscular females, this power is very great, and sometimes almost supernatural. This strap passes through two loops on the back pad, then comes forward and passes over the hips, then along the thigh and around the knees. It holds and supports the hips as it passes over them. In some cases, and in particular stages of labor, the pain in the hips is quite severe, and sometimes excruciatingly so : in these cases, this strap affords a very great relief. After passing round the knees, the ends of this strap are made to approximate the back pad to a dis-

tance of a little more than half-way up the thigh, where they are fastened to the strap as it passes down the thigh.— This must be done in a workmanlike manner, so that the strap will set perfectly smooth on the thigh. This forms two loops, into which the knees may be planted and held with great firmness and stability, which gives a sensation of support and increased strength that is felt through the whole muscular system. This seemingly increased strength inspires hope and confidence : this mental buoyancy does away fear, despondency and all the other depressing passions, and the labor proceeds with regularity and dispatch ; which is exceedingly agreeable to both patient and friends.

On this main strap and near the back pad on either side are two strong leather straps with buckles fitted to each, so that the length of the strap may be readily adjusted to the length of the thigh of any person.

3d. To those loops which hold the knees are attached two sliding pads, held by two narrow loops that slide on the loops of the main straps, so that these pads may be moved as the length of the main strap is altered, so as always to bring the pads directly over the knees. The use of these pads is to prevent the pressure of the straps from becoming painful to the knees in protracted labor, and the benefits which they afford are not to be neglected, for the trouble of moving them is nothing, nor does it take up a moment's time.

4th. There is a narrow strap that is made fast to one side of the loop that passes over the knee : this narrow strap then passes directly under the foot of the patient, and to its other extremity is attached a buckle which buckles on to a short strap of the same width, which is attached to the loop that passes over the knee on the opposite side from the attachment of the long strap. The use of this strap is to



prevent the possibility of the main strap slipping off from the knee when the patient pulls hard by the handles, or in case she should pull on the handles before the extension is made of the thighs on the pelvis; and when the patient lays on the side it gives additional support to the whole lower extremities. But when the patient is in a sitting position, or lies on her back, the feet rest upon some other substance, and do not require that support. The extension should be made by the knees in the loops of the main strap in all cases.

5th. There are two handles—they are constructed as follows: there is a strap to each knee, which passes thro' the loops of the movable knee-pads—the ends of these straps come up on each side of the thigh, and are then attached to each end of a handle that lies transversely across the thigh, approximating near enough to the pelvis to make it convenient for the patient to grasp them with her hands. The shape of these handles is so well adapted to the grasp of the hands that no cramping or any other difficulty whatever attends this action: they are covered with soft velvet, so that they can cause no uneasiness to the hand when the patient pulls hard upon them, and the patient may pull on them as hard or as lightly as she chooses, and in proportion as she pulls on the handles, the pressure and support of the knees will be augmented.

It will be found in practice that the patient always wants to grasp something with the hands, and either pull or push on whatever they lay hold of: the reason of this will be explained hereafter, in connection with a condensed description of the natural and artificial parts together. I think it better for the patient to pull than to push, from the fact that both the abdominal muscles and the diaphragm act with greater force and efficiency when they pull: still,

they will many times grasp the main straps as they pass down the thigh, and push to very good advantage: but I have almost universally found, where the patient was inclined to push, that, with a little timely and well-directed advice, they can be persuaded to pull on the handles; and after they have made the experiment two or three times they will do it with all the ardor and zeal of those who commence it with their own free will and accord. I have never yet had a case that, with a little tact and management, did not terminate in this way.

I have now given descriptions of those parts concerned in parturition, which were formed by the God of Nature for that end.....some of these have been quite brief, others more at length and detail. I have also given you a description of that Instrument which we have intended, and which we design to be a co-worker with the former—extending an auxiliary hand to those natural parts to assist them to bring to a speedy, safe, and, in every other way, successful termination, the painful labor in this department of the great work of re-production.

I will now proceed to give in a more connected form the manner in which I propose to accomplish the two great designs which we had in view in the invention and introduction of this Instrument, viz., to facilitate the process of labor, and at the same time to mitigate the sufferings and the agonizing pains of that portion of God's creation on whom the curse of the fall seemed to light with a heavy and a withering hand.

The process of parturition is of a very complex nature, from the fact that there are a very great number of parts involved in the operation, and these of a very heterogeneous nature; and great care and some little skill is required to give the separate functions of them all in a clear and com-



prehensive manner. But, poor a mariner as I am, I must launch away upon this stormy ocean with the best chart and compass which I have at hand, and put my hand to the oar and show my good will if not my success in this great attempt.

With regard to the individual members that are connected in this work I have given most of them in detail; that is, the great number of the voluntary muscles, their names, their insertion, and also their use, in the ordinary operations for which nature designed them to act; and, very imperfectly, the part which they perform in the great drama which has caused them to appear before my readers at this time. The other cause of complexity arises from the difference in the nature of those servants or agents who are called upon to labor in this all-important field of operations.

Those of the first class which we have mentioned we have already said were voluntary; that is, they are under the power and control of the will or volition. The *will*, as it were, issues its imperative commands to those voluntary agents, and the mandate is implicitly obeyed, if in the power of the agent so to do. It is the exercise of the will over the abdominal and other muscles that constitutes the voluntary part of labor, and it is to this part that we are able to render the most immediate and efficient assistance by art; and here it is that the Supporter steps in, not as an intruder, but as an important co-worker and an invaluable assistant in the labor that is before them.

The other part of this work is done in a different manner and by another set of hands altogether: the operation is different—different causes are in operation to produce the same result, and these causes obey a different set of laws entirely. The actions which take place in this department, are called, in common parlance, *organic*, or involuntary:

they commence independently of any effort of the patient, and proceed in the same manner. These actions are like an ancient description of the wind—we hear the sound thereof, but know not whence they come nor whither they go: they are not under the control of the will, nor do they obey its laws or its mandates; but, like the Yankee soldier, they fight on their own hook. The organ of which I am speaking at this time, is called *uterus matrix*, or womb.—This is undoubtedly a muscle, as all its structure and functions show, and one of exceedingly great power, (as sad experience has sometimes taught me to my cost); but this organ, as I have before observed, is not, like those which I have described, under the power of the will. It acts entirely independent of all the exercises of volition: it is controlled by, excited to, and continued in action, by a cause or causes the nature of which it would be worse than useless for me to attempt to explain.

Why it is that the uterus, after the lapse of a certain time from impregnation, should commence the process of parturition by a continued series of efforts to throw off its burthen or relieve itself of its contents, is more than I can tell; and I shall spare myself the committal of one folly by declining to make the attempt. Long and many, tortuous and perplexing, fine-spun but slack-twisted, are the theories and explanations that have been attempted to account for this wonderful performance of the uterus. Many a great man with a little mind has written lengthy and flowery dissertations on this subject, and embellished them with a kind of tea-bell eloquence that is more tongue than brains; but they have probably been edified to a much greater extent, and far more agreeably entertained by their own research and eloquence than has fallen to the lot of any of their readers.

This class of productions, as far as I have had the misfortune to examine them, have usually been the wild-fire productions or vagaries of some hair-brained fanatic, or puerile monomaniac. It is one of those unfortunate cases where philosophy has yielded the ground entirely, or consented to amalgamate herself with a train of ill-conceived chimeras, and badly chosen hypotheses; and the effect has been a darkening of the atmosphere of true science all around us, as with a fog of pestilential exhalation of poisonous effluvia and baleful cloak-damps, thrown off from the quagmires and stagnant pools of fancy, without reason and imagination—without judgment. These writers, or will-o'-the-wisps, as they might be called, are those that we read of when it was said by the patient one of old, "Ye darken counsel by multiplying words without knowledge."

All that I shall attempt to say with regard to the efficient and final cause of the contractions of the womb at the end of a particular period of gestation to expel the fœtus, is, that it is some inherent, instinctive, organic principle that God has implanted there, and it is subservient to certain calls of nature which she makes upon it whenever she stands in need of its assistance.

We all know the fact that after fecundation has taken place, and the ovum through the medium of the fallopian tubes has passed from the ovarium to the uterus, and about forty weeks or two hundred and twenty-eight days have passed by, that the uterus then commences a most vigorous effort to expel its contents, which had laid there with perfect quiescence, and the uterus had carried it without a show of resistance for the space of ten lunar months. These efforts of the uterus to relieve itself of its contents, consist of a series of contractions and relaxations, which occur at greater or less intervals, attended with considerable pain

and restlessness, usually accompanied with a desire to move often from place to place; and not very unfrequently it is accompanied with a feeling of fretfulness and impatience. This may occur however with any disposition, no matter what the natural affability or good-nature of the person may be: it is merely the effect of these contractile efforts of the uterus produced on the whole nervous system, and takes place on the principle that effects follow causes. These symptoms, in connection with others not necessary to mention here, we take as the commencement of labor; and these alternate contractions of the uterus are usually called by the patient and the attendants, "grinding pains," from the fact that they give a kind of a grinding and disagreeable sensation, without any particular expulsive efforts; and at this stage of the labor very little can be done by the way of art. This action being *organic*, and without the scope of volition—the organ to which these efforts belong, must do the work.

The Supporter can do little or nothing at this time, except in those cases where there is great pain in the back from the commencement of labor; in these cases much relief may be afforded to the back. I have used it under those circumstances with most decided relief; but when used at this time it should always be explained to the patient that the relief to the back is all that she is to expect of the Supporter at this stage of labor. With this understanding, I have used it with the most perfect satisfaction to the patient, and to those who witnessed the effects; and I have thought sometimes that the expulsive efforts came on sooner and that the labor was terminated in less time than it otherwise would have been. But if the Supporter was injudiciously applied at this stage of the labor, with an encouragement that it was going to enable her to be delivered

at once, an inevitable and most injurious disappointment must be the result; for it is not in the nature of things, without the direct interference of miraculous results, for the woman to be delivered before the mouth of the womb is dilated. Consequently it would be most reprehensible in any person to hold out such hope to the patient, no matter what the power of the assistant was, if it was anything short of an omnipotent hand. I make these remarks from the fact that wicked and designing men might make use of this method to bring the Supporter into disrepute among females, who, of course, cannot be supposed competent to judge of the philosophical operation of the instrument when separated from that of her own experience.

These dilating pains are not under the control of the will, they are made by the uterus alone; and in making them the uterus obeys certain inherent and determinate laws, which I have already declined an attempt to explain. This part of the labor that is performed by the uterus is not only different from the other or voluntary part of it, but it is also somewhat complex in itself.

The uterus is a muscular structure of a peculiar kind, and is composed of two sets of fibres, with a power of contracting on themselves; and this power is complicated in such a manner that these fibres act antagonistically, or in contrary directions. One of these set of fibres are called circular or transverse fibres, and when they contract they lessen the transverse diameter of the uterus by approximating the parietes in that direction; and it is these fibres, and particularly those situated about the servix and os uteri, that enables the uterus to carry and sustain the weight of the fœtus during the time of gestation; and when the fibres act in conjunction with the others, they oppose the dilatation of the os uteri, and the expulsion of the head of the child

through the mouth of the womb, just in proportion to their contractile power. And even after the exit of the child's head through the mouth of the womb, a strong contraction of these fibres would firmly embrace whatever portion of the child remained within their reach, and consequently they would retard the expulsion of the fœtus in the same ratio that these fibres are called into action. Hence great care should be taken that nothing be done to excite an undue action in these fibres, otherwise the labor will be prolonged, and the sufferings of the female will be augmented by such useless and injudicious management.

It was for this reason that I declined the attachment or use of a front pad, (which I once had in contemplation,) to be applied to our Supporters, believing from the facts which I have here mentioned that its effects and operations would be to retard the work rather than help it, and that it would most certainly, in most cases, prove a hindrance rather than a help.

All the parts of our instrument, as it is constructed and used at the present time, are indicated by nature, and instinctively called for by the parturient female; and I added them one by one in the various trials which I made, by watching the effects of those which I had, and the indications or calls for those which I had not. But I never in all my practice heard a female call for pressure over the womb, or any part of the abdomen, during the time of child birth. And from the fact that this never seemed to be indicated by nature or called for by the patient, (if it was wanted it would be called for the same as other things they demand,) I have, as I believe very judiciously, and as a matter of safety, rejected it as worse than useless.

In instruments, as in medicine, I consider that the indications of nature ought in all cases to be the rule by which



the bounds of safety are marked out; and they should also be considered the true landmarks by which all the construction and use of both instruments and medicines should be regulated. What are the great and primary objects of medicines and instruments as they are used to aid us in the healing art? It is not to create new principles by which we may lord it over nature, and compel her to bend herself in conformity to this or that arbitrary rule; that would certainly look like being wise above what is written. Now to me it would look rather more becoming a poor short-sighted mortal to endeavor to assist nature to perform her own work in her own way; and when she calls for aid, it becomes us, in all humility as her servants, to tender such things as we, after a careful examination and close and well directed observation, find best adapted to satisfy those calls. And what she does *not* call for, let no one presume to force upon her in order to drive her from the path which God has marked out for her; or what is still worse, make forced and gratuitous applications for the sake of filching from another what justly and of right belongs to him.

If any thing can ever be done by pressure on the abdomen of the female during her accouchment, or if any thing is ever required to be done in this way, it can be much better done by the hand of the accoucheur than by any other means under heavens; for by using the hand, the pressure may be made directly upon the fundus of the uterus, which might assist the longitudinal fibres to approximate the fundus towards the mouth, and thereby assist them in making the expulsive efforts to accomplish the delivery of the child. But nothing can be more clear to a mind of sufficient capacity to comprehend the mechanism of labor, than the simple fact that pressure made by a pad over the region of the lower circular fibres would stim-



ulate them to contract ; and just in proportion to that contractibility, as I have before shown conclusively, they will retard the delivery of the child. I shall say no more on this branch of the subject, and to those who are not total and entire strangers to all the functions and operations of the different parts concerned in labor, I have already said more than was necessary. A wise man will be convinced with less than what has been said, and a fool will not be convinced though I had said a thousand times more. And even if they were, it is a thrifless work to make such proselytes ; it is a kind of game that never pays for your powder and shot.

The other set of fibres which enter into and belong to the structure and formation of the uterus, run in nearly an opposite direction from those that have been described, and consequently encircle the long diameter of the uterus ; and from this fact they are called longitudinal fibres.—When these fibres contract they approximate the fundus or top of the womb towards its mouth, which lessens the long diameter of the womb, and, at the same time, it increases the transverse diameter. The circular fibres resist this effort of the longitudinal ones ; but, by a continued action of the superior power of the longitudinal ones, this resistance is overcome, and the os uteri becomes dilated—ready to give egress to the child's head as it commences its first journey of life. I have spoken of the superior power of the longitudinal fibres. I am aware that this is a controverted point, as regards the power of the two sets of uterine fibres ; but, from the simple fact that these two sets of fibres oppose each other at the commencement of labor, and that, in the end, the longitudinal ones prevail, it is very natural for us to conclude that those whose works preponderate are the most powerful.

Thus far the labor has progressed almost entirely by an involuntary action, or a series of them, which will have occupied a greater or less amount of time, just in proportion as the longitudinal fibres have been strong and active, or as the circular fibres have resisted their efforts. This is a very tedious part of the labor, and it is rendered much more so from the fact that these dilating pains are generally considered by the patient and the attendants as being entirely useless; because they do not "bear down," as they express it, they think they are having all that suffering without any beneficial effects to repay them, and hence it is that we so often see an impatience and fretfulness manifested by the patient. The idea of suffering without any compensatory bliss to follow, produces a depression of spirits and a despondency of mind, and this causes great irritability and excitability of the nervous system; and from this state of the nervous system follows impatience and fretfulness, to a greater or less degree, with as much certainty as the needle follows the pole in the chambers of the north. With this impression on the mind, the patient, and not unfrequently the attendants, will importune the physician to give something to relieve them; or in other words to produce better pains. But in this stage of the labor neither Supporter nor medicine can be made available, if the dilatation is proceeding properly.

It is however a mistaken idea that these dilating pains are useless or unnecessary; and this error should be corrected by the best means that may, under all the circumstances, be suggested to the mind of the accoucheur. The fact is, that these dilating or grinding pains are a preparatory process, and must, in the nature of things and of laws out of our control precede the real effective and efficient causes to produce the birth of a human being; and they

are as important as any other stage or portion of the labor.

When the longitudinal fibres have prevailed over the resistance of the circular ones, and the mouth of the womb has become properly dilated, then a change comes over the face of things; the labor is no longer conducted by the involuntary efforts of the uterus alone, but the voluntary powers now offer their aid and assistance, and the pains seem to pass rather imperceptibly from what the patient and the assistants call grinding or useless pains to those which are accompanied with forcible bearing down efforts, which give the patient an impression that they are doing some good and are destined soon to relieve her from her sufferings.

At this time she begins to have a strong desire to help herself, and, as the result of these desires, she wishes to make bearing down efforts simultaneously with the involuntary contractions of the womb; and now all the various parts and machinery of labor are brought into requisition, and so strong are the desires of the patient for what she thinks she wants, that it seems exceedingly hard that she should be denied. The most of these desires are instinctively suggested to the female; she cannot tell you why it is that she wants them, but she can tell you with a great deal of emphasis of the fact that she *does* want them.

And now let us see what these calls of nature are which are suggested and required by the suffering female in this her hour of peril and tribulation. Usually the first thing called for by the parturient female after the efforts of the expulsive pains have fairly commenced, is to have her knees held firmly, so as to allow her to press on the point of resistance by extending the thighs on the pelvis; at least the tendency of the effort is made in that direction and in that manner. It is very seldom, however, that by the

means heretofore used the knees could be held with sufficient firmness to satisfy the wishes of the female, and it is more effectually done with the Obstetrical Supporter than it could be done by a combination of every other means that I have ever known.

Next is a desire to grasp something with their hands and pull upon it with more or less force ; and the fact that they cannot give a philosophical or scientific reason for these desires does not in the least degree diminish the desires themselves, nor does it satisfy the patient when she cannot be gratified.

Next in order is the pain in the back ; this is not always very severe, sometimes it is slight and does not cause a great uneasiness to the patient. At other times it is most excruciatingly severe, so much so that it requires all the powers of endurance that human nature is gifted with, in order to bear it with any degree of composure. With all those powers of endurance for which females are so much celebrated, these sufferings will many times extort from the sufferers such cries and groans as will pierce to the heart even of the most careless spectator, and they are certainly any thing but pleasant to the ear of the humane physician, particularly when he is appealed to in the most earnest and supplicating manner to do something that will give them a few moment's relief from their anguish. How often would I have given any thing, or all things that I could have commanded of this world's goods to have been able to comply with and satisfy those pitiful appeals. But never did I realise the gratification of these laudable desires until I had the pleasure of using the Obstetrical Supporter ; and up to this time I never saw those pains mitigated or at all relieved, save in a very slight degree, and that in a very bungling and troublesome manner. How often have I

turned away in disgust from these unavailing efforts with the mental exclamation of "Oh! my God! are these sufferings never to be palliated by human skill?" and a negative answer made our boasted science appear smaller than Hahnemann's 30th dilution of common coffee.

But the long looked for and much desired agent has come at last, with healing in his wings. I do not hesitate to say, and I say it without fear of contradiction by those who have made the experiment, that nineteen twentieths of all this pain in the back may be done away with by a judicious use of the Supporter. And if this was all that it effected, and its entire benefits were summed up in this one thing, it would well deserve and probably receive the patronage of the profession.

I have now given a brief description of the organs and parts most directly concerned in the mechanism of labor, comprehending both the voluntary and the involuntary systems, and the manner in which each fulfil their separate appointments. I have set forth, according to the best of my ability, what are the calls of nature in this great work, and how they are instinctively made known to the female, who is the principal laborer to perform this great work; and also what are the materials which nature has put into the hand of the female to enable her to perform this work; and the manner in which the various parts of this machinery act when in performance of the task assigned to it.—Now, the question arises, can nature be aided in the performance of this work by the hand of art? I answer that it can: others may say that it cannot.

It has already been said by some, (who are probably more conscientious than wise,) that any attempt to relieve the sufferings of the female in her agonizing struggles to give birth to her offspring, is striving against the edict of

Jehovah. They say that the pains incident to childbirth are the effects of the curse that was pronounced on woman in the garden of Eden for her disobedience in picking and eating and giving to the man that he might eat, the interdicted fruit, whereof it was said "thou shalt not eat," etc. Allowing this to be the case, for which, taking together all that was said at that time, there is some little plausibility; still it does not say that this penalty should remain eternally in force without any mitigation or palliation. If we take what was said against the woman by way of penalty inflicted on her in certain situations as the fruits of her disobedience, we will also receive what was said in her favor in connection with the former, emanating from the same high power. After the pronouncement of the curse a word of comfort was spoken to the poor dejected female, by him on whose words are based the pillars of heaven and earth. He gave her to understand that though for a time she must be afflicted, nevertheless that the old wiley serpent, the devil, should not always hold dominion over her nor her posterity. But on the contrary it was said that the seed of the woman was to bruise this serpent's head; by which she was undoubtedly to understand that the unlimited sway of the devil should be broken—that his dominion on earth should be scattered like chaff before the winds of heaven—and that with the cessation of this dominion should end his power to inflict pain and misery on the sons of men. Hence it is that the immortal Milton has not sung his paradise regained without good authority for so doing. And if the pain of childbirth is the penalty of the first transgression, judging from what little I have seen of those sufferings, it would seem to be placed beyond a doubt that the sin in question was most amply atoned for, so far as suffering could do it; and that it is high time something

was done to round off the sharp angles of these almost life-destroying agonies, if it is in the power of man to accomplish so great a work. And as respects the sin and iniquity that rests upon our endeavors to ameliorate these sufferings, I can only say that when I come to close up my career here on earth, and am called to render up to the bar of God an account, I do most devoutly pray that no other sin may be found resting on my soul or standing between me and the celestial paradise, than my endeavors to render more safe and easy the entrance of posterity into this wicked world.

Others have objected to our endeavors to give aid and comfort in this matter, because, say they, you have no right to do so; and as evidence of this allegation they adduce the fact that labor is a natural process, and say that it is mere presumption to attempt an interference by the puny arm of art. I really think that the force of this argument will not knock a man down. As well might we say that traveling was a natural process and that the use of the lower extremities are all the means we have any right to make use of to perform that work; and that steam boats and rail road cars and all other locomotive engines are mere innovations and trespassers upon nature, and ought to be annihilated at once. By the same rule of logic, all our ordinary manual labor must be performed without any artificial aid; we must forever lay by, (not as useless, but unusable,) the advantage of the lever, the screw, the pulley, the wheel and axle, and all other artificial and mechanical powers which in the wisdom of man he has made subservient to his use and comfort. The same objection would apply with equal force and pertinancy to all the obstetrical instruments that have been invented from the days of Aristotle down to the present time. Finally, it is a sufficient



answer to all these childish objections, to say that nature is not always competent to do her own work in her own way. There are accidents, deficiencies, and malformations, all of which it is the business of art to remedy, as far as in it lies. In these, either the death of the child or the mother or both must ensue, or artificial aid must be given to the unavailing efforts of nature to finish her task. Then if life may be saved by our efforts, when scientifically and judiciously applied, in some cases, it follows with equal certainty that nature may be assisted under other circumstances; and that much pain and suffering may be saved by a timely exercise of the same kind of skill and efforts.

And now, on taking a retrospective view of these things, I can lay my hand on my heart and say, the only thing that I have to regret in all this matter, whether it be in the sinfulness and impiety, or the impropriety of our endeavors to afford this aid, is, that I did not sooner bestir myself in the work, to invent or devise some means by which we might sooth, soften down, and heal those dreadful wounds inflicted by the barbed dart of sin on poor suffering humanity. I know it was said to the woman in the garden of Eden, "In sorrow shalt thou bring forth," alluding to the offspring; and never has there been a more literal truth spoken from the whole volume of inspiration, and never was there a sentence executed more fully to the letter.

We all know that it was said to man that the earth should be cursed on his account, including that hallowed spot on which he stood when he came from the hand of his maker in his primeval purity. The sentence passed upon man was no less explicit than that passed upon woman; and from that oracle whose word can roll the everlasting hills from their resting places, and cause mountains to spring up in the mighty deep, the edict came forth, and poor fallen

man was informed that thorns, briars and thistles should spring up in the land whither he goeth ; and that with such a luxurious growth should they shoot forth as to take the place of those spontaneous and edible fruits which the vegetable kingdom had heretofore yielded them in great abundance ; and as a necessary consequence of all this, it was said that man should gain his bread by the sweat of his face. There can be no mistake about the meaning of this language. Well, has man laid down under this sentence, and said, it is the edict of Jehovah and I must perform all this work with my hands or natural limbs, and never exert myself at all to ameliorate my condition under this state of things ; or has he employed all the powers of his soul, mind and strength to render bearable and easy the work which was at that time allotted him to do ? I let the ten thousand times ten thousand different kinds of machinery propelled by water, wind and steam, aided by all the advantages of the whole series of combinations of mechanical powers, from old Archimedes down to the wiley Yankee, calculated to save the labor and sweat of man, answer this question. And sorry am I to say, although I believe the assertion to be perfectly just and founded in truth, that so perfectly selfish has been the heart of man, that he has allowed his whole mind to be occupied with the desire to better his own condition, and with this desire has bent the whole force of his efforts and his energies to accomplish that end. In the mean time he has allowed the poor woman to welter unaided in her agonizing pains to bring forth an offspring that should prevent this earth from becoming a solitary waste. Up to the time of the application of our Supporter, and its adaptation to aid parturient females, very little has been done to assist her ; and that little has been in an inefficient, incomplete, bungling, perfectly un-

scientific and unsatisfactory manner. And I appeal to the sorrowful experience of every female who has gone through with this ordeal, the terror and torments of which are little less than the rack and the wheel of inquisitorial memory, to verify the truth of the assertions I have made on this occasion. What has been the occasion of all this deficiency in the obstetrical art. It has not been for the want of inventive genius; enough of that has been abroad in the world to supply this and every other call that might be made upon it, and enough of it a thousand times over has been wasted on the desert air, which if turned into the proper channel might have devised some means for the relief of poor neglected females centuries ago.

The solution of the cause, then, why this deficiency has been so general and so wide spread all over the earth, must have been a want of attention, an inexcusable carelessness on that point of obstetrical practice. And why this carelessness? Probably not from a want of respect to females, nor from an indifference or want of sympathy for their sufferings. I think there are two causes to which may be referred these *laches* in our profession. One of these I have already adverted to, that is, the selfish occupation of our minds for our own special benefit; the other, it is to be feared, has grown out of an error promulgated from high places, and from the mouths of those who ought to have spoken better things in the name of their profession to those poor mortals who are obnoxious to the penalties of sin—pain, sufferings and death. None of these are charged as growing out of a wicked or perverse heart or a depraved mind; nor is it believed or intended to be conveyed by the writer, that these errors have grown out of any malevolent feelings harbored by those who made these erroneous statements. They seem rather to have grown

out of an unfortunate amalgamation of the first and second stages of labor, and from the very obvious fact that no efficient artificial aid could be given to the former, that of necessity it would follow that nothing could be done for the latter.

We are all well aware that the edict has gone forth, that nothing can or ought to be done to aid or relieve a natural labor; that there is a certain natural routine of operations to go through with, and it is only the reckless, the presumptuous, and the ignorant, who will attempt to do any thing.

This error has been copied from author to author, and handed down from the wise of one generation to the wiser of another, till finally this antedeluvian shade has become venerable from its great antiquity, if not from its philosophical veracity; and so long has this been kept before the student and the practitioner, that it is now received as a self evident fact that nothing can be done. Hence, if the mind has glanced upon the subject for a moment, it has not been allowed to dwell there long enough to reflect whether this assertion is founded in truth or error, but has been instantly thrown off from the subject by the very sage reflection that great men have said that nothing can be done, ergo, nothing must be attempted, not even so much as to weigh the probabilities of the success or failure of a trial. It would seem that the idea of affording relief to a case of natural labor was clothed with a most awful majesty, and arrayed in some fearful garb that struck instantaneous terror to the stoutest heart; and no sooner is the idea revealed to the perception than the beholder is struck dumb with affright, then turns and flees as if a thousand demons were leagued in the pursuit.

Now I am not one of those who are fond of making in-

discriminate and uncalled for innovations upon old, long established, and well tried principles and usages ; particularly when the new idea strikes at the root of the tree that was planted and nourished by my superiors. But it so happens that I have lived long enough to learn that great men are only human, after all that may be said or sung of them, and that they are liable in common with their fellow mortals to commit an error. Unfortunately for them, and for us all, in this plain republican country, where each one thinks and acts for himself, none are infallible.

In this generation of wisdom, wonders and intelligence, I presume the idea will not be controverted that a great, wise, learned and good man, in saying a great many things, may at some time in his life say something wrong ; and having come from a great man, it may be copied, circulated and acted upon, by men great and small, for a succession of years or generations, and at last some blockhead like myself may detect the error. If so, I have an undoubted right to correct it, and none has a right to resist me ; and the correction of the error may be as important and as beneficial to mankind as if it had been made by one of the great ones of the earth. A correction of this kind does not make me the greater man, nor the one who committed the error the lesser one ; while the great man may detect and correct a thousand errors of mine, I have an equal right to correct one of his, if it comes under my cognizance, and within the scope of my perception. We are not to say, because a man is learned and wise, that his fallibility is not to be questioned, or his known errors corrected. This would be striking at the foundation of truth and all good principles, by which we may distinguish right from wrong ; the destruction of which would level mankind almost to the brute creation.

I have had the hardihood to attempt a correction of these errors by the introduction and recommendation of our OBSTETRICAL SUPPORTER, and have taken a position that *it is a real and substantial benefit* to those it was designed to help; and have assumed the responsibility to aver that it will give aid and comfort to parturient females in all natural labors. If on trial, however, it proves to be of no service, a mere dead weight on the practice of the obstetrical art, of course it will fall into deserved neglect and disuse; and the idea will remain in the ascendant, that nothing can be done. On the contrary, if it does all we claim for it, then the instrument will continue to be used, (and with grateful hearts by the females at least,) until child-bearing shall have gone out of fashion, and there is no more call or necessity for re-production of the species. If I may be allowed to judge from the past, I think it safe to predict that the destination of this instrument is *onward, onward*, until its beneficial effects shall encircle the earth—until the rays of the bright luminary of heaven shall not shed his beams on a portion of our globe where its utility is not known and appreciated. And it will probably be found by those who make the experiment, that a sneer or a vain and shallow attempt at ridicule, by weak, barren and grovelling minds, will never retard its progress. As well might these puerile efforts be put forth to suspend the diurnal motion of this earth, and thereby shut the vivifying rays of heaven's sparkling fountain forever away from us; or in the simplicity of their juvenile minds, make the abortive attempt to extinguish the flames of Vesuvius with sulphuric ether.

The honest fact is this, and it is the summing up of the whole matter as far as opposition is concerned, *the instrument is of real and substantial benefit*; and those interest-



ed in its operation will so find it, and they will not be denied the privilege of availing themselves of its benefits. Hence arise my confident assertions that no opposition that may be offered by trifling or fault-finding individuals will ever be effectual in retarding its onward course, to merit and receive a universal approbation.

Why it is that an opposition should be offered or attempted against the Obstetrical Supporter, is more than I can tell, or have any conception of. It carries out the principles that we have been acting upon from time immemorial, with this difference, that the means formerly used were inconvenient, inefficient and unsatisfactory to the patient, and harrassing and fatiguing to the attendants. The Supporter does all that has heretofore been attempted, and does it in a neat, safe, efficient and satisfactory manner to the patient ; and relieves the attendants entirely. If these are objectionable parts or properties to an instrument, then let us have them ; if they are not, then reserve the objections for an occasion where they will be more useful.

The *soi desant*, great man in her Majesty's dommions, one who is intrusted with the perservation of the life and the continuance of the health of his fellow beings, to some extent ; who has also the high responsibility resting on his shoulders of moulding the principles, storing the minds, and otherwise equipping those young men with the proper armor who are holding themselves as candidates for that high, humane and honorable station of guardians of health—he should have been the last one to reject the benefits of the Supporter to those who look up to him for aid in time of trouble and distress ; and also to refuse to impart a knowledge of its benefits to those who are dependant upon him for that knowledge which is to regulate their future conduct and lay a foundation for their usefulness in



all time to come. Such men should not be so puffed up with a fallacious idea of their own far seeing wisdom and clairvoyant foresight of futurity as to think themselves capable to predict with certainty the future destiny and ability of our instrument, without an ordinary examination or a moment's reflection; nor should he, when addressed in a gentlemanly manner, put on such an air of pomposity and assume such a commanding position that it would be perfectly withering to a man in the common walks of life; then under a garb of all this dignity and dignified ostentation undertake to cover up an unpardonable ignorance of the operation and utility of a thing, by coolly and sneeringly calling it a "yankee notion," closely allied to wooden nutmegs, etc; and under the same transparent veil of would-be-greatness undertake to excuse himself from approbating the thing by saying that it was improper for ladies to exert themselves with such an instrument, and that he should have to take his *servant* with him to carry it around—(the instrument weighs about 18oz.)—this argument weighs about as heavy as the instrument of which it complains; and they are nei her of them very alarming, except to weak minds. Nor do I believe that the public mind when rightly informed will allow him to reject an instrument of so much worth with impunity; and instead of taking the trouble of carrying the weight of one pound, or employing his servant to do so, he could indulge himself in the more pleasing employment, and claim it as a right due to his great dignity, to recline himself with all ease and much complacency on a highly finished sofa, or other convenient place for lounging, and allow the poor suffering female to waste her strength and prostrate all her vital energies with her unaided and a most unavailing efforts to relieve *herself* from the agonizing and terror-fraught

sufferings incident upon childbirth. These things may pass on for a while until a knowledge of their afflicting and life destroying principles are made known to the community at large, then they will recoil with a deadly effect on the heads of those who have palmed them off on an unsuspecting and confiding people. Then these men who are wise above what is or ever ought to have been written will find that their assumed omniscience is the rock on which they split and made shipwreck of their terrific prophecies, and that the stone which the builders have refused has become the chief of the corner, and on whomsoever it falls it shall grind him to powder. Now in taking leave of this subject, (on which I have probably digressed too far, for which I ought to ask pardon,) allow me to say to my friend, that in all human probability the popularity of this instrument will live and be cherished in the hearts and memories of those poor sufferers who have been aided by its beneficial and salutary influences, when all that shall remain of him will be his *hic jacet* on the cold marble, and his ephemeral fame shall be quietly reposing in the shades of oblivion.

The question has been asked me, and probably will be again, that if it was necessary to call all those muscles which I have described into action to fix the points of attachment for the abdominal muscles, why they were not made fixed points from the beginning, and thus save all this trouble of using so many muscles, supporters and other apparatus to do the work that might have been done once for all. To these interrogatories we may reply, that in nearly if not every other situation and condition in life in which these points of attachment or the bones to which they belong are employed for our benefit, it is most decidedly necessary that they should be movable instead of fixed

bodies. I cannot now call to mind an other instance in which it is imperatively necessary that they should be firmly stationary in order to perform the function to which God had assigned them. It is indispensable that the movements of the trunk on the pelvis should be perfectly free and unrestrained, in order to allow us to perform those well balanced movements by which we maintain the centre of gravity in an erect position, and all other positions which our various occupations render necessary for us to assume. Without this the sloth of South America would be a better locomotive than we should. It is of equal moment that the connection of the pelvis with the lower extremities should allow a perfectly free and easy motion, in order for us to perform that almost constantly required act of locomotion, as well as to use the lower extremities for a great number of other and nearly equally important functions, which could not be done were it otherwise.

The motion of the ribs and sternum could not be dispensed with and sustain the life-preserving act of respiration; or at least without these motions respiration would never fulfil the designs for which it was intended by our beneficent creator. The absolute necessity of the multi-form and unrestrained movements of the scapula, or shoulder blade, are too obvious to require a passing remark; particularly when we take in connection the movement, between the scapula and humerus, or bone of the arm. Then commentaries cannot but be gratuitous, in as much as it is so clearly indicated that all those innumerable useful and indispensable movements of the upper extremities depend upon the freedom of these motions. It is to be hoped that the answers here given will show satisfactorily why these points should not naturally be fixed, and it would seem that the wisdom in design and the

munificence in execution in the adaptation of these parts so perfectly and fully to supply all our wants and necessities, should call forth our most unbounded admiration for the goodness and mercy of the divine architect and our beneficent creator, instead of the stupid question why they were not made otherwise.

But in the process of parturition, the necessity becomes as great, and is quite as indispensable, that these points should be fixed with a reliable firmness, as it is that their motions should be untrammelled to serve the other purposes of life for which nature has fitted them. The materials with which to fix these centres of motion, nature has furnished in great abundance. She has even been lavish, to some extent, both as to numbers and power. It then only remains for us to furnish a few simple mechanical supports by which these natural powers can be brought into an effective action ; then all is done that we can do. And why it is that we should have slumbered so long over the frequent calls for this instrument, can only be accounted for by the soporific effects which carelessness and bad advisors have produced upon our mental faculties. So completely had our senses become steeped in the fumes of these narcotics, that the mind had become all but caotic on this subject. It seems to be one of those unfortunate omissions that has passed on unheeded from era to era, and from generation to generation, until it would seem to require a voice sufficient to awake the antedeluvian dead in order to fix the mind upon it again. But once the idea is broached, and has stirred up the mind with sufficient activity to dwell upon it for a few moments, it would seem that the most verdant tyro in the land might have invented it long ago ; and that too, with so slight a mental effort that it would hardly be sufficient to disturb the slumbers of a midsummer's day-dream.

To supply these few natural deficiencies, and to enable the appropriate sets of muscles with great ease and promptitude to fix and hold those naturally movable points with an unwavering stability, we again offer our Obstetrical Supporter. It is a very simple instrument. Its simplicity, combined with its efficiency, should recommend it at first sight. It is easily made, easily applied, and most exceedingly easing in all its effects and operations. It even surpasses the most sanguine expectations of those who laid it before the public. You who have not seen this instrument, do not imagine that it looks any like the cholera, the nightmare, or any other frightful or terrific object that is calculated to fill us with awe and astonishment. It is perfectly mild and inoffensive in its appearance, and a child might pick it up without exciting the least degree of fear. It never required any superhuman powers of intellect, nor a depth of thought that would be likely to rattle dirt into their bread and milk on the other side of the earth to invent, construct, and apply it.

After the idea once crept through the head, and was backed up with the conclusion that it was not fighting against the decrees of Jehovah, or an attempt to countermand his express ordinations, it then only required a moderate effort of common sense to do the remainder of the work. I have no notion that a man ought to be deified for this discovery, and have a place set apart in heathen mythology for his special benefit and occupancy ; nor do I set myself up as a stump candidate for that honor. After having ascertained, as we believe, the philosophical reasons, as well as the fact, why a female requires her knees and back to be held and supported, and also the reason why she desires to grasp something firmly with her hands and pull so as to make them a fixed and stationary point, then

the suggestions were easy and rather naturally made as to what would be the best mode of supplying those wants; and the grand and primary object has been, from the commencement to the termination, to go just as far as the requirements of nature demanded and there stop short, without making one gratuitous addition, the effect of which would probably be to perplex and encumber the accoucheur, and annoy if not injure the patient. This would be reprehensible in a tyro, and especially so in one who pretends to be an adept in his business. I could have added to our instrument, if I had been regardless of the utility of its parts, and of every part of it, a spinal supporter, a crural supporter, a shoulder brace, and night-cap; also a flag-staff and the colors of the United States, and unfurled my colors and set them waving on the staff. But after all this show of great things, I should have displayed a much greater amount of patriotism than obstetrical knowledge. The spinal supporter in our humble opinion would not only be entirely useless, but decidedly detrimental; from the fact that it would confine, if not entirely destroy or prevent the motions of the trunk on the pelvis forwards and backwards; consequently we would lose the great advantage we claim for our Supporter in regard to the ease and facility, as well as the certainty, with which we adapt the line of direction to the axis of the pelvis, so that no lodgment or unnecessary pressure of the head on either side shall retard its progress through the superior strait. This we claim, and I believe justly so, to be a very important part of the beneficial effects of our Supporter, and it must be perfectly obvious to every one that a spinal supporter would annihilate these benefits at once.

A spinal supporter and shoulder brace, (why not a Dutch collar and tugs) would inevitably curtail, confine and en-



tirely suppress a great many motions of the trunk on the pelvis, and of the upper extremities, which would be very convenient and useful for the patient to make during the time of parturition ; being not only useless to the patient, perplexing to the accoucheur, but directly detrimental and injurious in more ways than one. For these reasons I rejected them without the least hesitation, when suggested to me before a patent was procured for our Supporter. The determination to attach these things to our Supporter, and to use them in that combination, must have been fostered and matured by one of two errors : Either the projectors of this fallacy must have been perfectly reckless in regard to the utility of their attachment, or its adaptation to the wants or calls of nature, and have gone on prompted by one single desire, that is, to get up something, no matter what, to evade our patent—or else they must have been actuated by a most shameful and unpardonable ignorance of all the process and mechanism of that labor incident to child-birth. For no mind of man, in the possession of a capacity that would enable the possessor to shun the ordinary destructive elements, such as fire and water, or with a sufficient instinctive knowledge to seek a shelter when it rained, would fail for one moment to see the glaring fallacy and worse than useless effect of these far-fetched and unscientific attachments, if he had ever accumulated a sufficient knowledge of obstetrical science to enable him to distinguish the pelvis from the cranium.

What has been said heretofore of our Supporter and the natural parts with which it is intended to be connected, and to which it is designed to give aid and support, has been said in detached or somewhat remote situations one from the other. It is now proposed to collect the various parts of this machinery together, and speak of them in a more



connected form, as they are designed to act in concert with each other. Then I shall cease to afflict my friends with any further remarks on that subject.

It was stated in the early part of my remarks, that I had two reasons for fixing my extreme point of muscular action at the knees. One of those reasons I explained at the time, and dwelt upon it at considerable length; endeavoring to sustain the correctness of my preference for the knee as the basis of muscular action for the lower extremities. The other reason, as was stated at the time, was, that I wished to mitigate the sufferings of the female, as well as to increase the power of the muscular action, thereby shortening the duration of the labor. For this purpose, that is, to mitigate the sufferings, we have the back pad, which is made to fit nicely and sit easy on the back; and I never have known it to cause any trouble or uneasiness, however great the pressure that was applied to it. On a former occasion it was also remarked that this pressure was to be applied by the main strap that passes through the loops of the back pad; from thence each extremity of the strap takes a forward direction to form two large loops which pass over the knees; then the thighs are extended on the pelvis until they are stopped and held fast by the loops of the main straps. When this motion is brought to a stand by the resistance of these loops, into which the knees are firmly planted, then all the efforts at extension made by the thighs on the pelvis bear directly upon the loops that hold the knees, and through the medium of the main strap the same amount of pressure is made to bear upon the back pad, and holds and supports the back just in proportion to the force that is applied by the knees to the loops that hold them. We may as well remark in this place, what is well known by all who have had any

considerable amount of experience in these matters, with a slight degree of observation, that when the head of the child is passing the superior strait, and while it is moving along the inner and concave surface of the os sacrum, unless it is counteracted by an external pressure of an equal or a greater amount of force, made from behind in a direction forward so as exactly to oppose the internal pressure, that this last named force will frequently produce a most excruciating, and in many cases an almost insufferable pain and torment. Many times there is great pain in the back before the head has entered the superior strait, when the fundus of the womb is thrown forwards and the mouth backwards, and the longitudinal fibres contract powerfully to impel the head onward, it is driven against the back with great power, amounting to all the contractile force exerted by the longitudinal fibres, causing great pain, fatigue and suffering, without making the least progress in labor. In this case the line of direction must be changed so as to carry the head from the back and allow it to enter the strait. This will relieve the patient, and give an opportunity to terminate the labor successfully.

It must readily be perceived that by carrying these straps over the knees, the pressure is made to bear upon the back in nearly a horizontal direction; whereas if these straps were carried downward and passed under the feet, so that the pressure must be made by the feet instead of the knees, so great would be the obliquity of this direction, that the unavoidable tendency would be to draw the back pad almost directly downwards; consequently the force applied in this direction would draw the pad away from the back, in a line directly towards the feet, so that all the benefits we claim for our Supporter by our mode of application must inevitably be lost. To prevent the back pad from

being pulled entirely from the back, a spinal supporter has been attached to that, and a shoulder brace is made fast to the upper end of the spinal supporter. This I suppose serves as a kind of top-mast to be used only in a light breeze. This shoulder brace of course must be lashed fast to the shoulders, and these appendages may serve to hold the back pad, per force, from being drawn down to the feet. But I do not see how the difficulty is remedied, as far as the utility of the pad is concerned; it certainly could not cause the pad to press against the back, and hold and support it in a direction to oppose the pressure of the head of the child. The remedy proposed for the wrong direction which this mode of extension gives to the back pad, I consider to be worse than the malady itself; for no mind can fail to comprehend what the effect would be. The spinal supporter being attached to the back, of course when the back pad is drawn forcibly downwards it must carry the spinal supporter along with it, unless that is held by some superior counteracting or controlling power. Now let us see what the curative process consists of, for this grand difficulty; it seems to be more easily applied than rendered effectual, it is this: The shoulder brace is attached to the top of the spinal attachment, and the brace is made fast to the shoulders, so that the back pad must keep its place unless the patient pulls her shoulders down below her hips. This remedy however is unfortunately rendered entirely inefficient, from the fact that it is not the mere presence of the pad in a certain situation that produces its beneficial effects, but it must be made, by some force applied to it, to press hard on the back in a particular direction; and this pressure and this direction cannot be given or applied by the combination and application of the apparatus as above described. Of course this puts an end to all that is neces-

sary to say on this part of the subject. One thing more, however, I had intended to have remarked upon; the whole force applied by the feet to the main strap comes eventually on the shoulders of the patient, and when a great amount of force is applied, the effect on the shoulders, the chest, and all the upper portion of the body, must be exceedingly annoying; and after they have been repeated a few times, accompanied with great exertions, these excessive inconveniencies must become entirely unbearable to the patient. And what is worst of all, these sore afflictions are not relieved by a single ray of hope that a beneficial effect may be produced thereby. I must say, in conclusion, that the only thing that allays my utmost astonishment that such a thing should ever be attempted, by those who style themselves medical men, is, that the attempt itself presupposes an entire ignorance of the mechanism of labor. These things might do *ad captandum vulgus*, but they will never take among the Doctors.

The manner in which the back pad of our Supporter will hold and support the back, from its shape, and the circumstances connected with its application, the direction in which the pressure is made, and the amount of pressure being regulated by the will of the patient, renders the utility of it perfectly obvious to every one. It needs only to be seen by Physicians, (meaning those who deserve the name,) to have its real worth estimated by a clear sighted and well-founded appreciation of nearly all its beneficial tendencies. Those females who have borne children will require no rhetorical charm to be mingled with its description, or to embellish its commendation, nor any trumpet-tongued eulogiums to convince them of its utility or the practicability of its powers to relieve them. Sad experience has taught them its true value, and in their judg-

ments, based upon experience, they will prize it far above the gold of the modern El dorado, or the oriental gems of the first water.

Another important part of our Supporter is the main strap, which passes from the back pad in a forward direction, exactly over the hips; and they also receive a firm and very grateful support from the strap. The ends of the strap again approximate the back pad and are united to the strap as it passes down the thigh, in such a way that they sit perfectly smooth and easy on the thigh; this union forms two loops of sufficient capacity to receive the knees and fit nicely to them. The knees then being the distal extremity for the insertion of those muscles which have their origin from the different points of the pelvis, and are designed to fix and hold it while the abdominal muscles contract and pull upon the superior points of the pelvis in the act of parturition.

It seems almost a waste of time to remark in this place, the idea is so naturally suggested, that it is worse than useless to fix the point to which we apply our support below the knees; it would certainly complicate the machinery to an unwarranted degree, by bringing into action a great number of muscles which have no direct connexion with the work to be accomplished. The most obvious and natural result of this commingling together of those parts dissimilar in functions and operations, forming a kind of heterogeneous complexity of the useful with the useless and unavailing exertions, will be to weaken if not destroy the effective efforts of those agents on which, if allowed to act by themselves, we might confidently and safely rely to accomplish the objects for which we employ both the natural and artificial parts. I believe that simplicity, combined with utility, is so far desirable that it is almost universally

sought for, and is a commendable quality in all instruments and mechanical structures; and with this principle in view we should always simplify to the full extent that we can go, without a positive reduction of power in the essential parts, or curtailing the utility of the instrument or machinery. The knees then are firmly planted in the loops of the main straps, followed by an extension of the thighs on the pelvis until the loops of the strap prevent the efforts at extension from going any further. Then the loops receive the effect of all the extensor muscles of the thigh, and they serve the double purpose of giving an easy and ample support to the knees, and at the same time the power applied to them is conveyed to the back through the straps, and is all that can be asked for or given in the way of a most grateful and all-sufficient support to that part. In all this operation it will be seen that the patient is the sole actor in the whole drama; if she is sitting she is not drawn off from her seat; if she is lying she is not disturbed in her position. She supplies the power by which the knees are held and the back supported; and this too is done by a simple effort that is peremptorily demanded to hold the pelvis in its proper position; and the pressure on the knees and back may be greater or less at the volition of the patient. Now all this work that was once complicated, mysterious, crude and uncertain, is carried on with an ease and simplicity, a quietude and neatness, that cannot fail to call forth the approbation and lead captive the good taste of every well-balanced mind that is based upon sound judgment. And the systematic co-operation of all its parts, combined with its regularity and reliable certainty, can only be excelled by the harmonious revolutions and equidistant motions of the heavenly bodies, whose equalibrii are sustained by an Almighty power.

The muscles which perform this part of the work, and are connected with the lower extremities, and the application of the back pad and main strap of the Supporter, having their rise from some points of the pelvis, and their insertion into the cervix, trochanters and staff of the thigh bone and into the head of tibia and fibula, are the pectinalis, the triceps adductor femoris, the adductor longus femoris, the adductor brevis femoris, the adductor magnus femoris, the obturator externus, the gluteus maximus, the gluteus medius, the gluteus minimus, the pyriformis, the gemelli, the quadratus femoris, the sartorius, the gracilis, the rectus femoris, the semitendinosus, the semimembranosus, the triceps flexor cruris, the iliacus internus, the obturator internus, the psoas magnus. When the efforts of the extensor portion of these muscles are brought to a stand by the loops of the Supporter in which the knees are planted, which prevents the action of the extensors proceeding any further, then these muscles all contract on themselves—they become very hard and rigid, and by their inherent and contractile force they pull very hard upon each point of their attachment, which by a reference to the description I have given of them in a former part of this work, will be found to be on some inferior or depending portion of the pelvis on the one hand, and some point of the thigh bone down to the knee, and into the heads of the two bones forming and being near the knee joint on the other. Now nothing can be more certain or less obnoxious to contradiction, than the fact that when these muscles contract in their muscular centres, and pull hard upon these points of attachment, that they will fix firmly and almost immovably the pelvis on the thigh bone; and this is one of the principal or grand designs of our Supporter.

To antagonise these muscles, and to act nearly in an op-



posite direction, and apparently to balance the action of the abdominal muscles, and to act in the same direction with them, we have the quadratus lumborum and the psoas parvus ; these are attached by one extremity to the spine, and the other to the posterior half of the pelvis. While the abdominal muscles act in an anterior and superior direction, these muscles act in a posterior and superior direction. These two sets of muscles hold a balance of power to some extent, and by their co-operative contraction the superior portion of the pelvis is held in a more steady, firm and well balanced position. The abdominal muscles have somewhat the preponderance in respect to power, and this is necessary to overcome the natural obliquity of the pelvis forwards and downwards. It is important for the abdominal muscles to act in a direction to raise the anterior part of the pelvis, and to bring the trunk forward so that the line of direction indicated by the child's head from above downwards, shall cut a horizontal line on the brim of the pelvis or superior strait, at right angles. When these regulations are systematically arranged, and all the parts brought into and maintained in their proper and relative situations, then the head will enter and pass through the superior strait without crowding so hard on the bones of either side as to prolong the duration of labor twice or thrice the length of time that would be required if every thing was properly conducted. In this day of light and knowledge, a failure by a physician to make the required observations, or a neglect to apply the proper means and give the necessary direction to secure such a position and relative situation of all the parts as will tend most directly and systematically to facilitate the great work of a safe and expeditious delivery, shows an amount of ignorance in his profession that may seek in vain for a valid

excuse, and ought to paint his cheek in a crimson dye that no bleaching agent can remove. Or, on the other hand, it shows a recklessness and desperation that is regardless of the lives and well-being of their fellow creatures, and betrays a breach of confidence and good faith reposed in them by a confiding community, that ought to be deemed a good cause to expel them from the pale of the profession, and effectually cut them off from all privileges and communion with the medical word.

We will now proceed to fix the superior extremities of those great voluntary agents which nature employs in the work of parturition. The artificial parts, or those which we propose to supply from the Supporter, to aid in this department of the work, are the handles of that instrument. It will be recollected that these are attached to the knees by straps passing through loops of the movable knee pads. The handles are made fast to each end of these straps and lay transversely across the thighs, a little above the knees. The patient grasps these handles firmly with the hands, then the flexors and extensors of the hand and forearm contract and fix the forearm on the hand, and in the same manner with another set of muscles the arm is fixed on the forearm. Then those muscles which have their origin from the different prominences and projections of the scapula, and their insertion into the bone of the arm or os humerus, contract and fix the scapula on the arm. A description of these muscles may also be found by referring back to the description of muscles. They are the supraspinatus, the infra-spinatus, the teres minor, the teres major, the deltoides, the coracobrachialis, the sub-scapularis, the biceps flexor cubiti, the triceps extensor cubiti. When these muscles contract to fix the scapula on the arm, they have a tendency to draw the scapula downwards and for-

wards ; and this calls into action another set of muscles which exert their contractile power to prevent the scapula from being pulled out of its place. They are situated on the posterior and superior portion of the thorax. These muscles have also been fully described in rotation, as they occurred in the description of muscles. They are the trapesius or cucularis, the latissimus dorsi, the rhomboideus, the levator scapula. These muscles do not directly antagonise the former set in the direction of all their fibres, but they do it sufficiently to make a fixed point of the scapula, which usually moves with great ease. The contractile efforts of one part of these muscles are directly opposed to the former set, and the remaining part of them act in a line of direction which forms an angle with the others, more or less approximating a right angle according as their several lines of direction decussate each other.

This brings us to the points of attachment for the superior portion of the abdominal muscles, which are the ribs and sternum and the cartilages that belong to them both. When the abdominal muscles contract, they must of course pull upon the ribs and sternum with a tendency to draw them downwards, or downwards and backwards ; this will stimulate another set of muscles, and cause them to contract and resist the effort to draw the ribs and sternum downwards. This set of muscles are those situated between the ribs and sternum and the scapula, and between the ribs, sternum and cartilages and clavicle or collar bone. The scapula, it will be recollected, when these previous sets of muscles are in a contracted state, is a fixed point ; and consequently when those muscles contract firmly, they will fix the ribs and sternum to the scapula and clavicle. These muscles will be found among those we have described in the former part of this work. They are the pectoralis ma-

for, the sub-clavius, the pectoralis minor, the serratus magnus, the triangularis or sterno-costalis. These muscles are also very much assisted by the action of the intercostalis externi and the intercostalis interni. When these muscles all act, as they will when any force is exerted which has a tendency to pull one rib from the other, they bind all the ribs firmly together, so that when the other muscles act only upon a part of the ribs, by the aid of the intercostal muscles all the ribs are held with equal firmness and security.

This completes a series of fixed points from the hands to the ribs and sternum. It forms a grand chain cable, stretching from one of these points to the other, and no pains has been spared to describe every link in this chain with that perspicuity, simplicity and truthfulness, that will enable every person to comprehend, by this view of the component parts, the real utility of the whole connexion. When this is understood, the philosophical principles on which the Supporter must inevitably contribute largely to the comfort and relief of the female, are as clear as the cause of that effect which is so often made manifest to us, and with which our visual organs have become so familiar, (i. e.) the effulgent rays of heaven's bright luminary, which dispels the darkness and gloom that had previously hung over us.

As I leave this part of my subject, permit me to say, if my arguments have been clothed with an ambiguity that cannot be penetrated by common minds, or if I have unfortunately blundered upon wrong premises, so that my inferences and conclusions must fall to the ground, it must all be attributed to a want of skill or a lack of argumentative power; for I have labored long and hard to be both correct and comprehensive, beyond the power of the logician to set aside.

The two points of attachment for the abdominal muscles being now fixed with a sufficient firmness and strength of material to hold them against the powerful efforts of those muscles to move them, it now only remains for the abdominal and respiratory muscles to exert their inherent power, given them by the Almighty and Omniscient Architect of all things, to finish the work that now only awaits their exertions for that purpose.

At the commencement of the voluntary efforts of labor, and after the os uteri has been fully dilated, the Supporter may be applied with a full expectation of receiving great benefit from its operation. The Supporter is applied externally to the clothes, so that no exposure or any other inconvenient or objectionable operation arises from its use. The back pad is applied over the region of, or opposite to the pressure of the child's head. This very much relieves or entirely suspends this very troublesome and many times excruciating pain. The loops of the main strap are then carried forward and passed over the knees, always remembering to adjust the sliding pads to the knees—this, in connexion with the muscles, fixes and holds fast the inferior or depending portion of the pelvis. Then the patient grasps the handles, (and would do so instinctively if she was not told,) and through a continued chain of contractions fastens the ribs and the sternum. Simultaneously, or a little preceding the last named efforts, the patient takes a full inspiration, which presses down the superior arch of the diaphragm, which converts this vaulted muscle into an inclined plane, commencing at the xiphoid cartilage and passing obliquely backwards and downwards, the lower portion descending as far as the inferior dorsal or superior lumbar vertebra. From this powerful and entire inflation of the lungs, by this long and full inspiration, and

the consequent firm pressure of the lungs upon the diaphragm, the plain thus formed is rendered quite firm and unyielding to the pressure that is made upon it. Then the abdominal muscles contract, (as may well be supposed from their size and power,) with a force that will overcome almost any opposition ; and, as heretofore shown, both the points of attachment for these muscles are now fixed with firmness and stability, and these muscles can exert all their contractile power to the very best advantage that nature and art can afford them. The great and invaluable advantage to be gained by the stationary and stable position of these points, grows out of the fact that the power of these muscles is greatly increased, and their action is guarded and sustained by the greatest economy, so that nothing is lost of all the effective power that they are capable of exerting.

When this contraction takes place in a proper manner, by the abdominal muscles, another plain is formed, though not exactly parallel with that formed by the diaphragm, yet from the manner in which the space between the two plains is occupied, they are sufficiently parallel for all practical purposes. The obtuse angle formed by the spine and the junction of the diaphragm with it, is, during the time of child-birth, occupied and filled with the abdominal viscera ; so that the uterus comes directly in contact with, and under the influence of, the abdominal muscles.

The womb is then pressed with great force, and by materials every way calculated to bring about the desirable end, between the plains formed by the abdominal muscles and the superior portion of the diaphragm. The uterus is compressed with a firmness, a power, and an adaptation of material, that was planned and executed by a higher power and a more far-seeing wisdom than was lately displayed

in the application of a pad to these parts. Who can now fail to discern that from the manner in which the recti muscles will contract, (i. e.) by separate or independent sections, they will almost embrace the fundus of the womb; and that this voluntary contractile action must necessarily afford great assistance to the efforts of the longitudinal fibres of the womb to overcome the resistance made by the circular fibres to retard the passage of the child. These contractile efforts put forth by the recti muscles, in conjunction with the same powers exerted by the longitudinal fibres of the womb, enable them to approximate the fundus towards the mouth, and consequently the contents of the womb must be expelled. These are all plain, easy, straight forward, and natural operations; there are no contortions nor circumlocutions to mislead the unwary, or to hide an error, however small it may be. Thus it may be seen that in proportion as the power or effective operation of these muscles are brought to bear on the womb, in the same ratio the labor must be facilitated.

Perhaps I may as well remark in this connexion, that if any person is disposed to doubt the truth or validity of my arguments, and the assertions which I have made with regard to the functions and the labor performed, as connected with the work of parturition, by the various sets of muscles which I have described, they have only to examine the condition of these muscles while in that situation, in which I have represented them as performing certain actions by virtue of their inherent contractile powers, and if they do not find them hard and unyieldingly rigid, and under the influence of a very powerful contractibility, then I yield the point. But if they find them in this condition, then I claim that they perform every thing that I have assigned them in the voluntary department of parturition,



and take it for granted that my arguments stand upon a firm basis, and are sustained by a fair and unequivocal demonstration. My candid opinion is, although it may not be of much value, that the time of any one would be far more advantageously spent by endeavoring to improve on the rules and principles here laid down, than by a fruitless and unavailing attempt to controvert or disprove them.

Then if I have proved to the satisfaction of my readers, and I think it can hardly be otherwise, that by the aid of our Supporter we increase the effect of the contractile power of the abdominal muscles, then so far we claim, and even demand, credit for the beneficial effects of the Supporter. We now ask, as an equitable claim for the Supporter in the nature of benefits entire, or as beneficial aid afforded to the natural parts concerned in the process of child-birth, the following specifications :

1st. That it mitigates the sufferings of parturient females, from the manner in which it holds and supports the back, and thereby counteracts the pains and sufferings which are produced by the pressure of the head upon the internal surface of the back. And I wish it to be recollected that this pad may be used in all cases, no matter how great the tenderness and irritability which has previously existed. So nicely is the cushion of the pad adapted to the back that it yields a most ample support, unattended with the most remote probability of doing an injury. I never have known a solitary instance where any inconvenience has been experienced from the use of it. I have known a number of cases where the patient would object to its application under the impression that it would increase the irritability then existing, but directly on the application of the Supporter, the pain in the back would be greatly relieved or entirely cease.

2d. That the entire ease with which we can adapt the angle of direction to the axis of the pelvis in a right and proper manner, enables us to proceed without the loss of any pains ; and so perfectly simple and easy is the method of doing it, that no accoucheur is at all excusable if he neglects to avail himself of this important benefit. He has only to direct the patient to grasp the handles of the Supporter, and if the head is thrown forwards and strikes on the os pubis, as is most commonly the case from the natural obliquity of the pelvis forwards and downwards, as I have before described, then direct her to pull herself forwards by the handles—this will carry the fundus of the womb forward, and give the head a backward direction, and if skill and care be used, the line of direction on which the head descends may be made to intersect the horizon of the pelvis at right angles, *cæteris paribus*, the head will enter the superior strait and pass on. If, on the contrary, as sometimes happens, the head is thrown backwards and strikes the prominence of the os sacrum, then direct the patient to extend her arms and move herself backwards, which of course will carry the fundus of the womb in the same direction, and give a forward movement to the head ; this will dislodge it from the sacrum, and with the same precautions, it will move on as before.

If the head does not become firmly fixed on either of these points, it is quite frequently the case that such is the obliquity of the pelvis, or the direction in which the head descends, that it presses so hard on one or the other of those points that it will very much retard the advancement and prolong indefinitely the duration of labor. It is not necessary for me to repeat the manner and the ease with which the head may be made to enter the superior strait at right angles, with the brim of the pelvis. When these

things are properly attended to, no pains are lost, and much suffering is prevented. Experience has taught those females that something must be done to overcome the natural obliquity of the pelvis ; hence it is that old ladies who have borne children and been frequently with others, will direct the patient to draw down or curl under her chin when the pain comes on ; and by this motion of drawing down the chin she carries herself forward, and very imperfectly performs that which the Supporter does in great perfection. Although the good old lady has no definite notion why she gives her advice, except that she has found relief from it, nevertheless the idea is a good one, and based on sound philosophy, and I have no hesitation to quote it as good authority for many of the directions which I have previously given ; and I have as good authority for the correctness of the principle as Prof. Meigs, of Philadelphia. I heard him advance the same remark in one of his lectures.

3d. That by the aid of the Supporter, we positively shorten the duration of labor, by enabling the proper sets of muscles to fix the two points of attachment for the abdominal muscles, thereby enabling them to exert the whole force of their contractile power, without loss or hindrance of any kind, for the expulsion of the fœtus from the womb.

The operation of the Supporter in this respect is to enable the voluntary muscles to perform that part of the labor which the God of Nature designed them to do, instead of leaving the whole of these almost superhuman exertions to be performed alone by the organic or involuntary muscles. Now if there ever was a case under the broad canopy of heaven that called loudly for the utmost exertion of every agent endowed with a capacity to lend a helping

hand, it is that of child-birth ; and as far as my knowledge extends, there is no labor required of human nature to perform so directly calculated to prostrate the whole energies of the system.

I shall not dwell upon the branch of our subject now under consideration, in this place, for the reason that I have discoursed upon it at great length elsewhere ; and if one will not be convinced after all I have said and demonstrated on this part of the subject, they would not believe though Moses and the Prophets should appear and verify my sayings.

4th. That we may entirely dispense with the aid of any assistants, as the Supporter will do all that can be done by the greatest number of them that could be gathered around the patient ; and what is of still greater importance, do it a thousand times better. A nurse to take care of the mother and child after delivery, is all the help we need, and all that is required to be in attendance ; unless the patient should require the presence of some near and dear friend to sooth her in this hour of tribulation, which sometimes tries the fortitude of both patient and physician.— This however is the true province of the attending physician, and if he is a gentleman, and has his heart in the place that every member of the profession should have, he will never neglect or allow an opportunity to pass unimproved to sooth and comfort the poor sufferer by the most kind, sympathising, and encouraging language that he is master of ; and he may rest assured that such conduct will never be forgotten by the recipient, and it will revive and restore her crushed and drooping spirits, like the kindly dews that are distilled from the benign heavens above us on the parched and withered plant—so that the patient is not only relieved to a very great extent from her pains and

sufferings, but a very considerable amount of toil, patience and trouble is saved to the assistants; and this to many feeble and delicate females has proved the cause of a severe and sometimes a protracted case of illness. Even this latter benefit, isolated from all the others, would materially interest nearly the whole female portion of any community, and should enlist their influence for the adoption and general use of the Supporter; and when its whole operations are known, it never can fail to produce that result.

5th. That the Supporter is not only entirely safe to the mother and child, but it adds to the safety of the mother to an extent that has never yet been fully appreciated; and this, to my mind, and to every mind duly impressed with a just sense of the weighty responsibility due to its fellows and to its God, is no trifling recommendation, but one that should favorably impress the mind and judgment of every person who justly appreciates the value of human life. In my opinion, it ought to be the watchword of every physician in the land, that we should always, without exception, use those means that are known to be safe, and such as will increase the safety and lessen the danger of those who confide with an unwavering hope in our skill and philanthropy.

From the earliest time in which I was initiated as a novice in that noble, philanthropic and almost God-like art of healing the sick, down to the time of penning these thoughts, the idea was irrevocably and most solemnly impressed on my mind, that the true science of medicine, when faithfully studied, perfectly understood, and wisely, judiciously and carefully administered in its application to practice, was one of the great and prominent mercies of God to man, and through His unbounded goodness it was

bestowed on us to lessen the dangers naturally incident to human life—to alleviate our pains and afflictions—to eke out the span of human existence ; and, from its source, as well as from the principles it inculcates, I have ever looked upon it as one of the noblest sciences that ever the capacious mind of man was enabled to embrace or comprehend.

With these exalted ideas of this pre-eminent science, I also imbibed another, to me very natural impression, which was engraved on my innermost soul with indelible material, viz., that the great, grand and fundamental principles of this science were embraced in these few words : “ Visit and administer with care, skill and prudence to the sick and afflicted—cure and prevent disease by every laudable and safe means that sound reason or true philosophy has suggested to your mind—endeavor, at all times, when called upon, to aid the agonizing struggles of nature to free herself from the fangs of disease, by every safe and expeditious remedy that the munificent hand of God has so abundantly strewed in your pathway.” These principles, according to the views of your humble servant, are a kind of *multum in parvo*, or *cornucopia*, from which materials may be drawn to rear the whole grand superstructure of that proud science of medicine which has descended from our ancient and deified worthies. So strongly have these principles entwined themselves about my memory, that I shall probably never be able to rid my mind of the impression that the safety of the patient, (or those who intrust their lives and health in our hands,) should stand in the forefront of all our endeavors for the restoration of health, or the mitigation of pain and suffering ; and that safety is the key-stone in the sublime arch of the healing art.

Being of that school of politicians that are not frightened

at responsibilities, I take it upon myself to say, that no man has a right, that may be inferred either from religion, morality or humanity, which are taught from the word or inspiration of God, or from the principles, rules or philosophy which are taught in the science of medicine, to use dangerous and destructive articles in the curative process within the province of the physician ; or to use doubtful remedies, the operations and effects of which are not perfectly well known and scientifically established on the most reliable basis ; or to use those remedies, the effects of which are not to be depended upon, being erratic, eccentric and dangerous, from the fact that they are governed by no fixed laws or established principles on which a safe and philosophical calculation might be based : hence, every endeavor to effect a specific object with these things, would be like the efforts of the blind man to comprehend light.

Whoever so far forgets the dignity of his station as to make use of these unsafe, uncertain and uncontrollable remedies, fraught with treachery and danger, degrades his calling, and descends to a level with the empirical ignorami : he is out of the pale of his profession, and has overstepped the farthest landmark that gives bounds to the most liberal construction which may be put upon the most favorable rule or principle inculcated or put forwards in the whole science of medicine. The station in life held by the man who indulges in the use of these forbidden fruits of the profession, does not alter the case at all : if I take a club, gilded and ornamented in the most splendid manner, and beat a man's brains out with it, I am equally amenable to an outraged law as if my club had been simply 'rough and ready.' It matters not whether a man is wise or simple, noble or ignoble : 'the Ethiopian cannot change his skin'—he is battering down the pillars that uphold the venerable



temple reared with so much care by the wisest and best men of the profession in all ages of the world. Safety, I repeat, is the polar star, and of the first magnitude in that heaven-guarded constellation composed of the brightest spirits that ever shed light and glory upon the medical world; and the eye of the good physician will ever be fixed upon it, and if his compass is made of the right materials it will direct him to that star with the same unerring certainty that the magnetic needle, though far away on the ocean-wave, will point to the mysterious chambers of the north.

When called upon by an afflictive dispensation of a wise through inscrutable Providence, to administer to the sick or to perform an operation on the afflicted, that star should be in the ascendant, and our conduct be regulated thereby. Hence the first enquiry that will present itself for our consideration will be, what is the safest course to be pursued for the benefit and restoration of this patient? And when settled by a scientific knowledge of the disease and the proper remedy, the next thing presented for our consideration and determination will be, what is the most expeditious mode to accomplish the same end? And when this is settled upon, we should prayerfully invoke the blessings of heaven to aid the efforts we may put forth for the recovery or the comfort of a fellow being. When this is done with that faith which will ever make works effective, we may commence our labors with every human probability of success. Would to heaven that this was a universal law by which every member of the profession was governed throughout the wide universe of God!

These rules and principles have been laid down as landmarks and beacons for our guidance, as pilots while steering the ship of practice through that ocean of science that has for its object the perfection of the healing art, by

every work on therapeutics that has ever emanated from the light-giving bodies of our profession since the setting of that star that presided over the life of the venerable and deified Hippocrates.

The same wholesome laws and righteous principles have been promulgated from the desk of every Professor where your humble servant has been so fortunate as to be a listener ; and he has treasured them up in the archives of his memory as things never to be forgotten, with the same veneration as did the worshippers of Apollo the predictions of the great Oracle at Delphi. And they have been handed down to us for imitation, clothed with a garb made sacred by the experience of ages on ages. These ancient and time-honored maxims have been distilled from the lips of the hoary-headed sages in our profession, who have grown gray in a long and honorable life, spent at the bedside of their patients, who have been gathered to their fathers as a harvest fully ripe, and have bequeathed us these heaven-approved principles, which, if heeded, will fall upon us like Elijah's mantle, and shield us from a thousand sins and follies. They should ever be to us like the oracles of ages speaking from the tombs that hold the dust of greatness and wisdom. I appeal to the sober second thought, to the cool and deliberate reason, to the calm, profound and philosophical judgment of every noble, well balanced and philanthropic mind, the whole wide world over, if the side of safety is not the shore on which every son of good old Æsculapius should arrange himself if he desires the approbation of Heaven and the good will of his fellow-men. The minds and souls of those great and good men, the source from which these principles have emanated, are as high above the novel but gilded butterfly toys of the shallow-brained, barren-minded empirics, whose highest

aspirations of ambition are to captivate the vulgar by some little wonder-working incantation, or temporary insensibility, as those soul-cheering beams from heaven's grand luminary are superior to the insignificant glow of the solar phosphori that excites the nocturnal wonder of the poor nervous school-boy.

Some have wove themselves a kind of arachnoid mantle to shield themselves from the frowns of an incensed community, if their folly should prove fatal to its recipients, by saying that the patient had called for the suspender of vitality; but that covering is too thin altogether. Suppose they *did* call for it—they are not the proper judges, at such times, of the danger or safety of a remedy. I have been appealed to, often and again, in the height of the most agonizing torment, to give them something to put them to rest or kill them at once. Suppose the patient should tell you, while in a state of misery amounting to a degree of suffering to which death seems, for the time being, by far the most preferable, to take a razor and cut her throat. Would that shield you from the retributive justice of the broken and outraged laws of your country? Would it dry up the tears, and hush to slumber the cries and groans of the near friends and dear relatives of the deceased? Would it be a valid excuse or a reliable shield to allay the ire or turn aside the unerring shaft of offended justice, or the devouring judgments of that all-powerful but seemingly disregarded God, who has devoted an entire commandment in his decalogue to the great law-giver, to say unto man, "*Thou shalt not kill*"? Better for the man who should commit this, or a similar wickedness, that a mill-stone had been tied to his neck, and he cast into the midst of the great deep.

A physician has no license to be a gambler, and human life is not a proper material to stake on a game of chance,

for the reason that, if it is lost, it can never be made up or restored. If we must indulge in a kind of professional gambling, let us do it theoretically instead of practically: then, we may lose our reputations, but not the lives of our patients. In this case we shall use our own funds instead of borrowing that which we have no means under the heavens of paying. Let us never presume to experiment with, or foolishly employ those agents, the tendency and effects of which are known from past experience to be dangerous. And when I speak of *dangerous* remedies, I do not mean those that are known to be fatal at all times; but if former trials, either of our own or those of others, that have come to our knowledge, have demonstrated to our satisfaction that from the administration and baleful effect of an article a few have died and a great many have escaped from its fatal consequences, this ought to be sufficient, for physicians at least, to let it alone. It is certainly not very becoming in us, who are the guardians of the lives and health of those who confide in our skill, and trust implicitly in our friendship, and have set us in the watch-towers of that science whose ostensible purpose is to give warning when danger approaches, to make the experiment and see who are the unfortunate ones that are to die, or the fortunate ones that are to escape death, under the use of a remedy, the effects of which are, to suspend, for the time being, the whole vital energies of the nervous system. Because a person may be in danger and escape immediate death, does not render it desirable to those who have an ordinary degree of prudence, to rush, heedless of consequences, into those places fraught with danger and with death.

Bonaparte crossed the bridge of Lodi under a most tremendous and galling cross-fire of his enemies, which darkened the noon-day sun, and made the atmosphere rife with

balls and grape-shot ;—yet he escaped with his life.— But does that render it a suitable place of resort for a physician to recommend to his patients for their health ? General Taylor escaped from a number of well and hard-fought battles on the plains of Mexico, where many a brave soldier fell by his side to rise no more till aroused by the sound of that angelic trump that shall awake the slumbers of the grave. On these sanguinary fields, where death finds his harvest amid the clash and clang of mingled armor, sounding in mortal combat, where the missiles of death flew swiftly and thickly around him like the silent messengers of fate to invite the spirits of heroic men to the fields of another world, the old hero stood erect among the ruins they had made around him, with his undaunted eye beaming confidence of success. Some of these death-dealing messengers, however, had the audacity to carry away the breast-work of the old brown coat, but there was no surrender. And yet General Taylor escaped unharmed from all these impending clouds of desolation, whose portentous frosts seemed to threaten immediate death and annihilation. But few of us, I think, would be particularly anxious to make the experiment in order to ascertain whether we would be alike fortunate with the general. Perhaps I have taken up too much time on this branch of my subject ; but I consider it of vast importance that the community should know where danger is concealed, and that they should also understand that an escape from danger is not a destruction of it, but the danger may remain to take deadly effect on them at another time.

I have said that our Supporter adds to the safety of the patient, and now I will endeavor to show wherein. We shall take it for granted (certainly till the contrary is shown) that it has been proved beyond controversy that our Instru-

ment increases the power and efficacy of the voluntary muscles that enter directly into the labor of child-birth. In connection with this, another fact presents itself, of equal importance and perspicuity : it will not be disputed, if the former is admitted, that the Instrument will lessen the labor for the involuntary, in the same degree that it increases the operative power of the voluntary muscles, which, without this, or something similar to support them, are almost a dead-letter in the whole operation. It follows, then, as effect follows cause, that if a good proportion of the labor is thrown upon the voluntary department, it will relieve the uterus from the same amount of toil, and instead of throwing the whole upon the womb to be performed by that organ alone, which must necessarily waste its strength and exhaust the vitality and contractibility of its fibres, and thereby render it incapable of contraction after the expulsion of the child. It is greatly assisted by the voluntary muscles, both as to the amount of labor it has to perform, and in respect to the time it is compelled to keep up those powerfully contractile efforts. The result of all these contractile efforts from the voluntary system, rendered salutary and effective by the aid of the Supporter, enables the womb to come out from the work active, vigorous and strong, having the power of a ready and voluntary contraction, or very easily excited to the same after delivery.

Now I presume it is well known to every accoucheur in the land, that one of the great, if not the greatest causes of danger and death attendant on child-birth, is a uterine hemorrhage after the separation of the placenta from the womb, or a partial separation accompanied by a flaccidity of that organ, and an inability to contract upon itself with sufficient firmness to compress the bleeding surface so as at once to prevent the hemorrhage. In speaking of hemor-

rhage in this place, reference is not had to the unavoidable hemorrhage that takes place more or less when the placenta is attached to the cervix and os uteri : this takes place prior to the delivery of the child, and depends upon other causes than those I refer to above.

It is more than probable that the whole number of deaths from hemorrhage after delivery, has never been known to the profession at large. Doubtless many deaths have occurred from concealed hemorrhage, with the young and inexperienced practitioner, who has failed to detect the cause himself, or has neglected to make it known for fear of censure for his want of observation in not detecting it in time to apply the proper remedies. This would be a most reprehensible conduct, and, when detected, should be met with no measured terms of disapprobation by every right-minded and truly philanthropic member of the profession : never allow one error to be covered up by the committal of another, and thereby deprive those who are alike inexperienced from the practical benefits which they might derive from a knowledge of the misfortunes of the other.

When the powers of the womb are not prostrated by long continued and unaided efforts for the expulsion of the child, and strong, healthy and vigorous action takes place, accompanied with an immediate and equal contraction of all its parts, then all danger is happily at an end, and we may rejoice in the entire safety of our patient. I have never known a case of troublesome hemorrhage where the Supporter was used, either in my own practice, or that of any other physician ; and I have taken pains to inquire particularly in reference to this matter, of those who have made the most extensive use of it.

The beneficial effects of the Supporter in these respects are so nearly self-evident, that it seems almost like an im-



position on the good sense of one who has been fairly initiated into the science and art of obstetrics to undertake to prove it by other means than the plain principles upon which the Instrument operates. From the very nature of the operation of the Supporter, taking into consideration the increased power which it affords to the voluntary muscles, it must be obvious to every person who has the slightest acquaintance with the mechanism and organs by which the birth of a child is effected, that in proportion as you increase the efficient power of that division of labor which is under the power of volition, that in the same proportion you relieve from labor the organic or involuntary agents that have a share in this work. The fact is, there is a certain amount of labor, (and most woful hard labor too,) to be done by the two sets of agents appointed by the Almighty to perform the work: if it is all thrown upon *one* set, of course they must perform it; but, being contrary to the original design, it becomes unnatural labor for those parts,—the consequence is, an undue exhaustion and prostration of those parts. Whereas, if the labor is equally divided, agreeably to the design of Omnipotent Wisdom, each part will be competent to the task, and able to perform it without producing that degree of prostration that amounts to a temporary suspension of the vitality of the part, and consequently an incapacity to promote any further action. This equality in the division of the labor for the two systems to perform, which is attributable to the use and effects of the Supporter, enables the whole to go through its own portion of the labor with very little prostration of strength, and of course leaves it more vitality and contractile power, which soon enables it to recover the natural size of the organ in an unimpregnated state, and the danger is less and the recovery, more rapid in the same ratio exactly.

There is another danger, though not so frequent, but more disastrous in its consequences, which the Supporter would have a tendency to remove, if not entirely, to a very great extent : I allude to a rupture of the womb during labor, which is usually a most fatal accident. Happily, however, for the condition of poor suffering females, this is an accident of rather rare occurrence ; but when it does happen, it is awful in the extreme, and every precaution having the most remote probability of preventing the accident, should be seized upon with avidity, and applied in a manner best calculated to give it full force and effect to accomplish that object. If the rupture is a consequence of a disease of the uterus, or from any cause the tendency of which is to destroy the strength or elasticity of the muscular fibre, or the fibre itself, probably no precaution within the reach of a human arm could prevent it. But when the accident happens in consequence of an undue exertion of the womb to expel its contents, having all or nearly all the labor thrown upon it for the want of proper means to bring in to its aid the contractile power of the abdominal and respiratory muscles, then the Supporter is exactly the thing that is wanted to supply the deficiency, and to prevent the occurrence of this terrible and fatal disaster.

The effect of the Supporter in these cases would be, to equalize the labor among all the natural parts concerned in it, and, by so doing, relieve the womb from its almost unearthy struggles, which are sometimes enough to break through bars of brass and tripple steel, and through the restoration of this equilibrium of action, save the lives of both mother and child. Not only this, but the manner in which the direction of the head may be contrioll'd by the Supporter, as I have heretofore described, which enables the accoucheur to prevent a lodgement of the head on the

pubis or the sacrum; or if the obliquity in the line of direction is not sufficient to effect an entire lodgement on either of these points, the head may be prevented from pressing hard upon them—thereby requiring a much greater amount of contractile force from the womb to propel it forward. Either of these accidents might very much endanger a rupture of the womb, which would probably be the death of both mother and child, and may with great ease be prevented with a little tact in the use of the Obstetrical Supporter.

Probably one great cause of a rupture of the womb arises from its being pressed with great violence while in a distended and attenuated state, and every fibre strained to its utmost extent of endurance by a powerful contraction between the head of the child and the sharp angle of the *linea clio-peitinea* which is sometimes unusually sharp. All this danger may be prevented by a careful and skillful adaptation of the head of the child to the axis of the pelvis; and should the calamity happen through a want of these precautions by the one who had the charge of the female in this situation, he should be put where the disaster would not be repeated through his ignorance and want of skill.

I have a word to say in this place, which ought to have been said in another place while speaking of a front pad, which has been proposed to be attached to the Obstetrical Supporter, to press directly over the region of the womb. Now there can be no doubt in the mind of any one capable of comprehending the subject, that a pressure made in this manner on the womb, while in a state of violent contraction, would be one of the most fruitful causes of rupture that has ever had an agency in the production of that most dreadful casualty.

There is still another benefit to be derived from the Sup-

porter : it will have a direct and most decided tendency to prevent that frequent, troublesome, and sometimes even fatal difficulty, called *prolapsus uteri*. So far as my own observation goes, in reference to the cause of this difficulty, I think I can say that by far the greatest number of cases that I have treated might have been referred back, directly or indirectly, for its cause, to a long, tedious and protracted labor, where the whole burthen of that most terrible and fatiguing process has been thrown upon the uterus to perform almost entirely alone. The same thing happens here as in the case previously treated upon : there is no balance of power maintained, and no equality in the distribution of the labor among those parts which were designed by nature to co-operate in harmony together, in order to accomplish with safety to all the parts concerned, that great work to which we have so frequently referred. Probably no one who has ever witnessed the progress and completion of this labor would hesitate to declare without fear of contradiction, that when the labor was divided among the different parts designed to bear a portion of its burthen, with the most scrupulous care in regard to the equality of the distribution, that there was still enough in all conscience for each one to perform.

It is in those cases where there is a great inequality in the distribution of the labor, that the womb becomes so much fatigued and worn out by an almost preternatural exertion, and the ligaments of the womb are kept so long and so violently on the stretch, that their contractile power is not only prostrated, but almost entirely destroyed—so much so, that they remain in a flaccid and debilitated state for a great length of time. The same difficulty operates upon the foundation on which the womb rests that has already destroyed its suspensory power, so that the support is lost

from above and beneath, and, of course, its gravity must carry it downwards: this is a prolapsus uteri, in some one of the stages in which authors describe it, which depends upon the extent it has fallen. After the female has waited as she believes a sufficient time from her accouchment for a recovery from its effects, she makes the attempt to walk about, and with a great pain in her back and side, a general feeling of lassitude and low spirits, accompanied with a seeming inability to raise her limbs from the floor, she drags herself around, an object of pity to all who can appreciate the misery she endures. As soon as the female places herself in an erect position, under these circumstances, and the gravity of the uterus is brought to bear on the enfeebled and debilitated ligaments, instead of holding it by a healthy and tonic contraction, they relax at once, and allow the whole superincumbent weight to press upon the vagina, which in a healthy state affords a very great support; but from the general relaxation of all these parts, that now gives way, and a complete prolapsus uteri is the result of all these failures.

I am aware that many writers on this subject refer the great majority of cases of prolapsus to *leucorrhœa* as a cause; but I must beg leave to dissent from that opinion. That *leucorrhœa* accompanies a large majority of the cases of prolapsus, I have no doubt; and that it accompanies it more frequently as an effect than a cause, I am equally certain.

If I am correct in my views in regard to the cause of this difficulty, that is, throwing too great a proportion of the labor on the uterus, to perform alone, it will then follow as a necessary result, that if the cause be removed, the effects will cease to trouble us. It certainly cannot be thought unreasonable to say, that it is by far the most commendable course to use all proper means to prevent this

disease, than to pursue a practice well calculated to produce it, and, when produced, use a remedy worse than useless for its cure.

We now offer our Supporter to the profession, and thro' them to the poor sufferers, as an instrument that is exceedingly well calculated to remove this cause. The manner in which it will equalize the labor among the voluntary and involuntary parts, and the strong, vigorous and healthy state in which it leaves the uterus, I have already commented upon, and shall not enlarge upon again here.

6th. That the mental effect produced by the Instrument is worth everything to the patient: and in speaking on this subject I can say as did Paul when he appeared before Agrippa. He said, "I am thankful, O king, that I am permitted to speak before thee this day, touching those things whereof I am accused; for I know thee to be expert in all the laws, customs and usages of the Jews": that is to say, he was thankful that the Judge, before whom he was to deliver his plea of justification, was one that could comprehend the depth and force of the arguments which he was about to put forth in his own behalf. So it is with myself when I address my professional friends on the effects of mental emotions. I, too, feel thankful that they can understand the force and appreciate the truth of my arguments. It is rather a popular notion that these mental emotions, operations and influences are trifles light as air, and are not worth the serious attention of any person to remedy, or prevent them when they spring from a wrong source, and follow a wrong channel. But the physician who is also a metaphysician, or, at least, sufficiently so to comprehend the phenomena which result from the connection of mind with matter, will from daily observation, become very competent and expert to judge of the wonderful influence

which the mental exerts, and frequently for a long time maintains, over the corporeal system.

I presume there is no experienced or practical accoucheur that has not had frequent occasions, and many times too frequent for his own comfort, of witnessing the bad effects of the depressing passions, such as fear, despondency, and the like, which operate to clog the various wheels in human machinery; and especially those females of delicate constitutions and finely attuned nervous systems. They cannot control their feelings; nor will any one qualified to judge of the mutual effects of mind and matter, or sufficiently acquainted with to be capable of discriminating between the various constitutions and temperaments with which they will so frequently meet, expect them to do so. God has not furnished them with materials to fortify against the ravages and inroads of injurious mental excitements, however strong the desire may be. They cannot rise above the depressing and injurious effects of these mental emotions on the contractile power of the whole muscular system.—These effects follow the operation of the cause, when it is allowed to exist, as necessarily and as certainly as a sickness of the stomach follows the administration of an emetic. Hence, our pity and commiseration may and ought to be excited in their behalf; but we never should allow our patience to be thrown from its equilibrium in consequence of our plans being thwarted by these causes.

Who, among us all, have not witnessed more times than one, the total suspension of all operations, almost as completely as if the patient had been visited with a shock of total paralysis, from the seemingly small cause of disappointment in not being able to procure the attendance of her own favorite physician? Then, hour after hour may elapse before the inroads of these mental innovations can be re-



paired, though met in the face and eyes by the exercise of all the tact and skill that the most expert manager can call to his aid. For this reason, I have always been averse to attending cases in obstetrical practice where another physician was sent for before myself; not from any chagrin or jealousy because another one was preferred before me, but because I feared that some unpleasant consequence might be the result of the disappointment to the patient; especially if I know her to be one of those temperaments that will break over the restraints of the judgment, and run wild with the imagination over the extended prairie of thought, gathering flowers only from those plants of a noisome and narcotic odor, the effects of which will bring up the gloomy shades of death before the mind's eye, and spread out the landscape of despair to gaze upon. In these cases, the rose and the lily may be tendered to them in vain—the medium through which they view things is smoked and bleared—the consequence is, the better appears the worse, and the worse the better.

The time that has been lost, both to patient and physician, the sufferings and tortures endured by poor unfortunate females who are constitutionally feeble, both in muscle and in nerve, and consequently full of fears, doubts and desponding feelings that arise in dismal clouds before her, from the fact that she knows her own inability through the delinquency of those physical powers to perform that important work that lies before her and must be done, and the number of infant lives that have been lost by the unreasonable procrastination of that much-desired moment to every poor, worn and disconsolate parturient female, i e., the end of their labor, never can be computed or comprehended by any living man. Nothing short of the all-seeing eye that views the past as the present, can realize its mag-

nitude. But the experience of each individual will teach *him* that if the experience of *every individual* who has practiced the art of midwifery were consolidated together, or spread out on one great chart before them, that the result would be most shocking to every philanthropic heart, and perfectly astounding to the most careless beholder.

Now, over all this arid and desolate landscape, where sorrow and misery sit brooding like the boding owl over the devoted city of the plain, and while standing aghast in the midst of this Golgotha, where pyramids of human bones might be scraped together, must we sit down in despair and say, there is no remedy! Is there no gleam of light emanating from the soul-cheering lamp of hope, to shed its bright beams on these cheerless regions where the sombre cloud of despair has cast its gloomy shadow o'er all the land? Is there no balm left in Gilead, and is there no physician there? I say there *is*, and have tendered its services to the world.

If fear and its attendant depressing passions are the cause of all these woes and ills of life, then if we remove the fear we abstract the cause: if we annihilate the cause, I need not add that we effect the cure; and allow me to add, in all humility, it is a cure that the Genius of remedies might have been proud of. There is something peculiar and almost wonderful about our Supporter to dispel fear and inspire hope. It is like the coat of mail to the stout-hearted soldier, whose implicit confidence is reposed in it for the preservation of his life. I have never known or heard of a female, while using the Supporter, to be fearful, desponding, or doubtful of her ability to go through with the labor before her with certainty and success. The fact is, they feel themselves held and supported, in every place where support is required, in such a manner that they cannot mis-

take the great and certain utility of the agent which imparts this support ; and it unavoidably inspires them with a soul-cheering certainty that they will be able to outride the storm of suffering and danger, and land triumphantly in the haven of safety and rest. And you may well suppose that the person who has passed through, on former occasions, a long, lingering, cheerless and desponding labor, can, in a most intelligible manner, appreciate these great and life-giving benefits.

These are the effects and the legitimate results growing out of a fair and well-timed use of our Supporter, and those who are disposed to doubt it I hope will remember the fate of unbelievers, and ponder well on the course they mark out for themselves, and beware how they incur the penalty annexed to their gratuitous folly and unbelief.

And I would inquire, is there one among all the numerous intelligences of God's creation, who has ever experienced the transition from a gloomy, fearful and foreboding despair, to a firm, rational and well-grounded hope of success, that would not range this wide world over, from the icy regions of the north to the eternal snows of the south, to procure an agent which could impart this heaven-sent fruition ? A sudden passage from one of these conditions to the other is a fullness that we cannot comprehend how it can be improved even by the bliss of heaven itself.

These are not the ephemeral and evanescent scribblings of an excited moment, or an over-heated brain, to accomplish a selfish purpose, or eulogize an offspring ; but they are *truths*, and *truths of momentous consequence*. They must and will shine out to illuminate this earth, and cheer the heart of many a sorrow-stricken female. It is in vain to raise the puny arm of mortality to prevent them : as well might you interpose the gossamer to shut out the rays of

heaven's bright luminary, and eclipse this earth in total darkness.

Let us then vie with each other in our exertions to send broad-cast, all over the earth, an agent that will cast out fear and inspire hope among that division of our race to whom, under God, we are most directly indebted for our own existence; and ere we pause from our labors, let us feel sure that none are in want of this blessing from a lack of our exertions. Then may we rest our head on our pillow, and say and believe that we have not lived in vain.

The stimulus of hope is one of the safest, the most delightful, the most soul-exhilarating remedies that ever was administered to mortal man. It is probably not of terrestrial origin, but has its source from that Fountain that supplies "every good and perfect gift." It is a lamp that lights up the pathway of the poor suffering pilgrim whose journey is onward through the shoals and quicksands of this wicked world. This stimulus of hope is always safe, but does not intoxicate: herein lies one very desirable property of the remedy—it is perfectly safe at all times, and under all circumstances, whether weak or strong. The beggar may obtain it—the rich man may not be able to buy it. This potent charm may always be administered with an entire certainty that no bad effects will result from its administration; and when it is tendered by a soothing and friendly hand, accompanied by the good wishes of those who administer it, how the languishing soul will drink it down! Nothing can be more grateful to the care-worn spirit that is seeking for a resting-place or green spot whereon it may repose and be shielded from the ills of this life.

The use of our Supporter affords all these benefits of hope and confidence, and by every pain through which the suffering female passes, she is satisfied that something has

been accomplished. From the success of every effort she is inspired with confidence to make another ; and now so great is the progress of the labor that the patient becomes satisfied, beyond a lingering doubt, that her exertions are being attended with the most complete and satisfactory success ; and soon she begins to indulge a hope that every effort which she makes will be the last that will be necessary to free her from her sufferings and allow her to repose under the watchful and soothing care of her friends ; and most happy am I to say, that it is very seldom the case that it proves to be a hope deferred.

This closes what I have to say on the beneficial effects of the Supporter. Much more might be said : in fact, it is difficult to say too much in its favor, or to praise it higher than it deserves ; but enough has probably been said to induce my readers to make a trial of it, and a full and fair trial is all that I ask to insure its unbounded success. I now leave it in the hands of my professional friends : they are competent to judge of its power to do good in the world, and to relieve those who most of all have stood in need of it for a great length of time ; and I feel confident that no true philanthropist, who is in possession of a knowledge of the great benefits that may be derived from its introduction and use, will ever lay a straw in the way of its onward course, until it is within the reach of all who may require its aid.

A *fair* trial is all we ask of any one ; and when this is done under circumstances to make it a *fair* one, and it does not meet the expectation or come up to the recommendation I have given it, then throw it aside in the waste places and let it moulder away with the useless and unused things of this world. But I can most solemnly assure the world at large, that it is no humbug ; nor is it anything originating

in that direction. It is well known to all the world who know me, that I am not a vender of humbugs. I have uniformly opposed all the leading impositions of the day that crossed my path, and those that have moored themselves within range of my guns, with all the energy and ability that God has given me; and what little I have been able to add to it, has been freely thrown into the same side of the balance. This has been done, many times, with a boldness and determination of purpose that has injured my business, and sometimes to a considerable extent; but I have taken what I believed to be duty for my guide, and made my opposition to humbugs and impositions without reference to loss or gain. I have neither fellowship nor partnership with the hordes of that genus of spirits that escaped from the disaster when the swine ran furiously into the sea and were drowned—who have since been made tangible bodies and are now strolling the country under the names of ‘Quacks’ and ‘Impostors’—who are cheating the gallows out of that on which it has a fair and undoubted claim—who are trespassing on the legal rights of the people every step they take that is not toward the state prison—and who are flooding the land from the arctic to the antarctic regions with their nostrums, panaceas, and all other aerial wonder-working curatives, and their pigmies on elephants’ legs, boasting of their semi-almighty power to trample diseases of all kinds under their feet with the same ease that the jack-ass did the chickens, and it is usually done with about the same amount of skill and intelligence. All their patent remedies are usually put a little ahead of the fruit from the original tree of life, and of course must act by charms, incantations and legerdemain; for, according to their own showing, they can act on no known or natural principles. The venders, boasting at the same time of their supernatural



powers and inspirations in the healing art, having received their pretended skill by imbibition, substituting impudence for knowledge, they shrink not at telling the most barefaced and outrageous falsehood that their great tutor and schoolmaster, the Devil, has ever instructed them in. True, their remedies are generally effectual ; for they usually kill disease and patient with the same stroke of their wand. No doubt but these perambulating siroccos destroy more lives than the cholera, the plague, and all the other sweeping epidemics that have gone abroad among us apparently to make desolate the face of the earth. Epidemics are usually periodical, and occur only at long intervals ; but these scoundrels, like the virus of some unseen cyptogamia, are always at their work of destruction. Sometimes, when I look abroad upon their works and the workers, I think as the old bachelor did when the school-boys gathered around him, tangled his legs, and threw him down. He then arose in his wrath and frowned most portentously on the boys, and exclaimed, " We are in great want of a pestilence ! "

I do not wish to be understood as boasting of my knowledge, or scientific attainments. I never pretended to know but little ; and, in what I have said, I only mean to be understood that I do not make unfounded pretensions to a knowledge of things, of the nature of which I am entirely ignorant. I know very well that I have said some large things of our *Supporter* ; and I also believe that I have explained them upon natural and philosophical principles.— We have made no pretensions to a special revelation, nor have we called to our aid the operation of supernatural causes. I again repeat, that we have got up this Instrument with care and deliberation. Commencing with a small and somewhat rude beginning, I made trial of its effects,



watching with all the acuteness that I was master of the benefits it produced—endeavoring, at the same time, to ascertain all the wants of nature that were not supplied. As I from time to time discovered these wants, I endeavored to supply them, with the best means that the ingenuity of us both could invent; and when, as I believe, from repeated trials and close and unwearied observation, I had supplied all the calls of nature, I stopped—believing that anything further would have a tendency to complicate the Instrument, and injure its effects, thereby defeating the ends I had so ardently desired to accomplish.

And I believe that it may be said without boasting, that I am not exactly a novice in that department of our profession which pertains to the art of obstetrics. I hope my friends will excuse a relation I am about to give, which might, under some circumstances, appear like a pedantic boast; but I believe my design is laudable, for I make the statement not so much in pride as in thankfulness to God for his blessings on the feeble means which I have been enabled to put forth for the preservation of the lives of my fellow-beings.

In almost seventeen years' practice, I have never lost a solitary patient in child-birth that has been under my care, nor of any disease immediately connected with it. To those who are acquainted with me, I need not say that it is not because I have done nothing in this branch of my profession. To those who are *not* acquainted with me, I will only say, that I have probably done as much as any other country practitioner of my age. If any doubts are entertained of the veracity of these statements, they may be easily satisfied on all these matters by a correspondence with those who know me well. All my field of operations in my professional career has been in Essex and Clinton counties, in the state of New York.

I now leave this subject to be enlarged upon by wiser heads, and embellished by more able pens than mine. If this Instrument shall prove as beneficial as I have anticipated it will, to that portion of my fellow-beings to whom I am more immediately indebted for my existence, and to whose fostering care I owe the preservation and sustenance of my helpless and infantile years, then I shall consider all my toil and labor, both mental and corporeal, most amply rewarded; and the good wishes and fervent prayers of those kind-hearted females for my future success in all laudable designs, is all the monument of fame that I aspire to.



## Explanation of the Plates.

### PLATE 1.

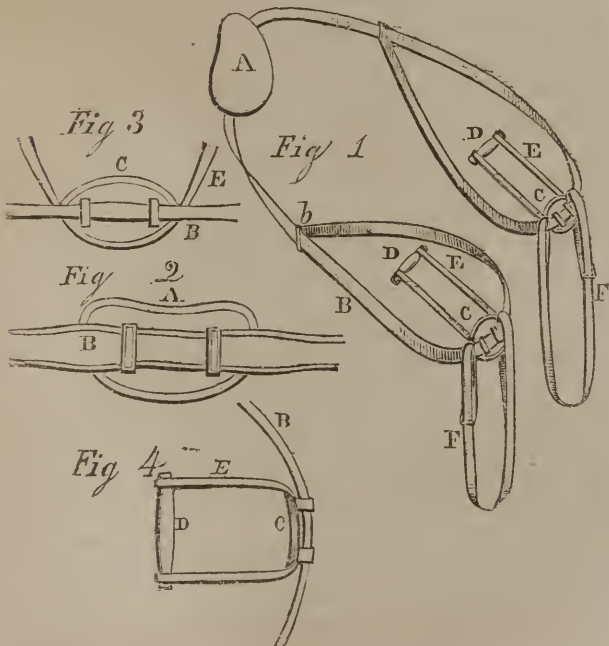
*Figure 1* is a perspective view ; [A] Is a pad to hold and support the back and apply a counter pressure to that made by the head of the child ; [BB] Is a strap passing through two loops on the back pad, having a buckle [b] on each end, buckling back into the strap towards the back pad, enabling the accoucheur to adapt it to the length of the thigh of any person with great facility ; it also forms two large loops for the knees, with two straps passing under the feet to prevent the possibility of the loops of the main strap slipping from the knee.

*Fig. 2* Is a back pad. [A] Shows the back of the pad, also its true shape ; [B] Shows the main strap as it passes through the loops on the back pad.

*Fig. 3* Is a moveable knee pad ; [C] Is the pad itself ; [B] Is the main strap passing through two loops on which

the knee pad slides ; [E] Is a narrow strap, going up the thigh, to which the handles are attached.

*Fig. 4* Is one of the handles. [D] Is the part of the handle to be grasped with the hand ; [E] The strap that passes through the loops of the knee pad, then passes up the thigh on each side, to which the handle is attached ; [C] Is the knee pad.



## PLATE 2.

*Fig. 5* Shows the Instrument in use. [A] Shows the place of the back pad; [B B B] shows the different situations of the main strap when the Instrument is applied; [D D] shows the two handles as they lay transversely across the thighs; [E E] are two straps to which the handles are attached; [C C] shows the situation of the knee pads; [F F] shows the two straps that pass under the feet to prevent the main strap from slipping over the knee.



## ERRATA.

- Page 59, ninth line from the top, for "their names, their insertion," read "their names, their rise and insertion."
- " 73, fifth line from the top, after "these," insert "cases."
- " 79, fifth line from the bottom, after "Supporter," instead of "to," read "from."
- " 93, fifth line from the top, for "staff," read "shaft."
- " 100, fourth line from the bottom, for "contractibility," read "contraction."
- " 105, first line, for patience," read "fatigue."
- " 112, fifteenth line from the bottom, for "frosts," read "fronts."
- " 113, seventeenth line from the top, after "child," instead of a period, there should only be a comma.
- " 115, sixth line from the bottom, for "whole," read "womb."
- " 117, sixteenth line from the top, for "*clio-peitinea*," read "*ilio-pectinea*."
- " 128, ninth line from the bottom, strike out "of," before "the nature."
- " 129, ninth line from the bottom, strike out "not" before "because."



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